

COMPUTERWORD

N.Y. bank deal likely to consolidate IS ranks

Cuts seen in Chemical/Manny Hanny merger

BY JOHANNA AMBROSIO
OF STAFF

NEW YORK — Short-term pain but long-term gain. That is how observers characterized the probable information systems ramifications of the proposed merger announced last week between New York banking behemoths Chemical Banking Corp. and Manufacturers Hanover Corp.

The IS layoffs and regrouping that are expected in merger situations will probably occur during the next one to two years, observers said. But a strong IS function in the combined institution five years from now is a possibility.

"There are likely to be significant short-term savings by aggressively combining the data processing and operations of the two," said Brenda O'Sullivan, a partner at Ernst & Young's banking information technology practice in New York. "Over the longer term, they will be in a

stronger position for improved customer service and the faster release of new products."

The merger would create the second largest bank in the U.S. behind Citicorp; the new institution would bear Chemical's name. The deal, expected to be finalized around year's end, has to be approved by regulatory agencies and the banks' shareholders. Chemical is the larger

Continued on page 8

IBM saddled with sales slump

BY NELL MARGOLIS
OF STAFF

Slowing computer sales cut sharply into IBM's revenue for the second quarter, leaving the company with a slim profit to announce last week and offering scant evidence of better days ahead.

Meanwhile, Apple Computer, Inc., in the midst of restructuring as it deals with a shift toward lower-margin sales, wiped out its profits with a reserve to cover ongoing layoffs and to pay for moving some of its operations out of California's high-rent Sil-

IBM 1991 Revenue Profit		
Q2—\$14,732	\$114	
Q1—\$13,846	(\$1,731)	
1990		
Q2—\$14,499	\$1,416	
Q1—\$14,168	\$1,687	
* Without an increasing charge for post-employment benefits, profits would have been \$22 million		

CW Staff: Janet Gorenson

con Valley area.

Analysts said the results are further proof that firms grown fat on proprietary technologies during economic boom times are finding that it takes time and pain to turn into slim and agile open systems players during a world-wide recession.

Even AT&T, one of the few major computer firms reporting upbeat financial results last week, dampened future expectations with the news that it may take a whopping \$4 billion hit against profits later this year as it absorbs NCR Corp.

Continued on page 8

Pace of software buyouts accelerates

BY NELL MARGOLIS
AND PATRICIA KEEFE
OF STAFF

It's mating season in the personal computer software industry. Before it is over, industry observers predict, there will be months during which everyone will be on the prowl for partners — any company is a potential target — and no combination is out of the question.

"The partnering business is reaching the point of promiscuity," said Brandy Brandon, an an-

alyst at Duff & Platts, Inc. Advancing technology, expanding venture capital, shifting user demands and relentless

Merger du jour

► Novell buys Digital Research, Inc. and its MS-DOS alternative, Page 99.

competition are converging to make the PC software market a hotbed of merger, acquisition and alliance activity for the fore-

seeable future, according to industry and financial analysts.

In particular, shifts in user demand are giving market leaders a growing incentive to buddy up to prove niche players.

"The PC is now mainstream," said Marshall Moseley, a PC software analyst at San Jose, Calif.-based market research firm Datquest, Inc.

"That means mainstream demands and highly trained, expensive employees to meet them."

Industry observers, many

Continued on page 99

3090 yields to OS/2 network

BY JOANNE M. WEXLER
OF STAFF

AUSTIN, Texas — Unfazed by the recent controversy surrounding the future of IBM's OS/2, the American Cancer Society is marching forward with a five-year, \$10 million project to move its databases and financial applications off of a central mainframe and onto 100 OS/2 Extended Edition-based local-area networks.

The society's somewhat unorthodox downsizing plan is to connect approximately 800 personal computers to OS/2 servers on Token Ring LANs without a network operating system in many sites.

In smaller locations, the nonprofit organization is leveraging the Communications Manager

Continued on page 6

Executive costs

How would you rate the pricing of installation and maintenance of your executive information system?

See Report's Scorecard, page 72

Product	Score
Response time: 30 years per product	
Pilot Executive Software's Command Center	48
Consultants, Inc.'s Commander	41

*Highest possible rating is 75. Rating based on a 1-to-10 scale where 1 is very poor and 10 is very good. The average score is 45.5 based on 10 responses of 100 to 1000.

CW Chart: Janet Gorenson

"Telework" hubs sprout in suburban America

BY MITCH BETTS
OF STAFF

For supervisors concerned that employees working at home will spend their time riding the fringe, there is a new form of telecommuting around the corner: telework centers.

Also known as satellite offices or neighborhood work centers, telework centers are computer-equipped office facilities located near



residential communities.

Employees who used to spend two hours commuting to head-quarters downtown can instead drive just a few miles to a satellite office.

In Hawaii, for example, 17 employees from a hodgepodge of businesses and state agencies show up for work at the Hawaii

Telework Center in the suburb of Mililani instead of navigating the nerve-racking Highway 1 freeway to offices in downtown Honolulu. The center is a pilot project of the state's Department of Transportation.

For employers, the biggest benefit is that by locating jobs close to homes, companies are in a much better position to recruit and re-

tain good employees who want to live in certain neighborhoods, according to managers of telework centers.

When Pacific Bell moved its headquarters a few years ago, for example, employees who did not want to relocate were allowed to use the vacant office space as a telework center, said

Continued on page 101

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IN THIS ISSUE

NEWS

- 4 Data General founder Edison DeCastro is a proponent of doom for minicomputers and proprietary mainframes.
- 6 Avis parks its yearlong inspection of workstation vendors in Unisys' garage.
- 7 Borland can't quite quell Database users' fears about its potentially short-lived future.
- 8 Sun takes steps to weatherproof its Sparcstation against stormy competition.
- 10 The FBI nab a ring of thieves who are accused of stealing more than \$6.4 million worth of DEC products.
- 12 Objective Systems Integrators is courting the big league with its network management system, Netenport.
- 16 Artificial intelligence gains adherents from a variety of realms, as evidenced at last week's AAAI conference.
- 99 Novell buys Digital Research and arms itself with DR DOS to compete with Microsoft.
- 99 Of mainframe makers and mergers: Compuware reaches an agreement to purchase XA Systems.
- 100 Bigger and better is AT&T's motto, as the firm scores its biggest contract ever, just as it prepares to consolidate with NCR.

Quotable

"The partnering business is reaching the point of promiscuity."

BRANDY BRANDON
DUFF & PHILIPS

On PC software activity. See story page 1.

SYSTEMS & SOFTWARE

- 27 Users of symmetrical multiprocessors can now get a piece of the SQL Server pie, as Sybase releases its latest database manager.

PCs & WORKSTATIONS

- 35 The Windows database market is up for grabs, and a host of developers will be reaching for the top of the heap by year's end.
- 45 Technology Analysis: Adobe's Firehand 3.0 and Adobe Systems' Illustrator 3.0 are both strong packages, for slightly different reasons, reviewers report.

NETWORKING

- 51 Some Apple users sow seeds of doubt where connectivity is concerned: Should the firm continue to rely on third parties or produce its own applications.

MANAGER'S JOURNAL

- 59 After a spate of acquisitions, International Paper is blending its corporate parts into a centralized whole.

COMPUTER INDUSTRY

- 79 The second-quarter results are in, and the industry is using those earnings reports to examine the way firms work.

PRODUCT SPOTLIGHT

- 67 An executive information system doesn't have to be host-based, but be aware of the drawbacks before going to the LAN version.

IN DEPTH

- 77 Project success begins with a capable project manager. By Ralph L. Klein.

DEPARTMENTS

- 6, 100 News Shorts
- 20 Advanced Technology
- 24 Editorial
- 66 Calendar
- 65 Book Reviews
- 84 Computer Careers
- 85 Fast Track
- 93 Marketplace
- 98 Stocks
- 102 Inside Lines

EXECUTIVE BRIEFING

■ Telework centers are emerging as an alternative for companies with employees who wish to work at home. These satellite offices, sprouting up in residential areas, seem to meet the needs of both managers and staff members. The facilities give workers a close-to-home commute and bosses the comfort of knowing employees are surrounded by an office environment rather than the distractions of home. Page 1.

■ Executive information systems are not just for mainframes anymore. According to a study by Ottawa-based Branham Consulting Group, 25 of 43 sites surveyed were implementing EIS on a PC LAN. The benefits can include lower costs, less dependence on IS for applications development and faster response times. Over the long haul, however, systems growth — in terms of both user population and user need to access an increasing number of databases — can pose some serious hazards. Page 67.

■ IBM's OS/2 scores a victory in an unusual application. The American Cancer Society plans to move a mainframe application to Telen Ring LANs, with OS/2 Extended Edition driving the servers. Eliminating the network operating system is expected to save both costs and administrative headaches. Page 1.

■ The proposed merger of banking giants Citicorp and Manufacturers Hanover is expected to create difficulties for IS as the parties figure out where to cut and what to merge. Observers suspect the reorganized IS function could become a strong support unit for what would be the second largest bank in the U.S. Page 1.

■ Avis picks Unisys as its workstation vendor after a one-year selection process. If the initial 100 systems hold up, Avis could call on Unisys to replace more than 2,000 terminals, a contract that would be worth more than \$10 million. Page 6.

■ IS managers tackle software costs by establishing the worth of a license based on the software's value to their firm. Then they tell the vendor that value is what they will pay. Page 27.

■ Guide International's president speaks out in support of IBM. While Guide is concerned about IBM's recent financial performance, the user group is upbeat about the firm's large-systems directions. Page 10.

■ IS managers tackle software costs by establishing the worth of a license based on the software's value to their firm. Then they tell the vendor that value is what they will pay. Page 27.

■ On site this week: Jet Propulsion Laboratories catches the downsizing bug and plans to include a network of workstations in its process of analyzing space data, a system long managed by mainframes. Page 29. The IS group at the Democratic Senatorial Campaign Committee gives its nontechnical users access to campaign data with a natural language tool. Page 32.

■ International Paper embraces centralized computing as IS' way to handle the firm's acquisitions of 25 companies in the past five years. Shunning the downsizing trend, the IS team says it sees mainframes and fewer data centers as the better strategy. Page 59.

■ Project management is more than technical know-how and scheduling skills. It's about managing people, which takes a combination of motivation, teamwork and communication. Page 77.

■ Amtrak finds an alternative to a chargeback system to keep track of the cost of mainframe services. Called menu billing, the automated system produces reports on costs of user-requested services. Page 59.

■ Looking at user satisfaction, program managers call large federal systems integration projects a success, even though Congress and the federal government blast them for being too costly and behind schedule. Page 81.

■ On site this week: Jet Propulsion Laboratories catches the downsizing bug and plans to include a network of workstations in its process of analyzing space data, a system long managed by mainframes. Page 29. The IS group at the Democratic Senatorial Campaign Committee gives its nontechnical users access to campaign data with a natural language tool. Page 32.

The 5th Wave

AFTER THE INITIAL MERGER OF TWO COMPANIES COMES THE DELICATE PROCESS OF SELECTING A DOMINANT SOFTWARE SYSTEM.

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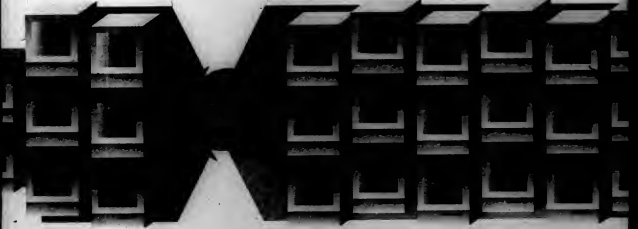
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DG links Aviiion to wide array of platforms

BY SALLY CUSACK
COWLEY

WESTBORO, Mass. — Unleashing no fewer than 30 software and communications products last week, Data General Corp. is offering interoperability to its Aviiion customers across virtually any industry platform.

Aviiion customers can use these products, available now, to communicate with Apple Computer, Inc., Digital Equipment Corp., and IBM systems across a variety of environments.

Leading off the announcements was a focus on the Aviiion Office Information Systems, a suite of packages based on office automation and Unix-based software from Unisys in Dallas.

This OEM agreement, coupled with DG enhancements, will allow users to integrate the Unix-based Aviiion workstation and servers with several environments, including MS-DOS, X Window System, the Open Software Foundation's OS/2 and Novell, Inc.'s Netware local-area networks.

Tyrell Armstrong, a deputy at the Monroe County Sheriff's Department in Key West, Fla., said his department is replacing a DG MV 10000 running CEO, a proprietary office automation package, with the Unisys version of the software on a newly purchased Aviiion 5300 dual processor. According to Armstrong, the new Office Information Systems products "behave much as CEO does as far as electronic mail and word processing. The spreadsheet facilities seen better than CEO, and now we have the capability to build databases within the package. My users will go crazy for that."

DG rolled out several document-conversion utilities and dictionary products to comple-

ment its desktop strategy, as well as software that allows the use of Lotus Development Corp.'s 1-2-3 and Wordperfect Corp.'s Wordperfect packages within the Unix environment.

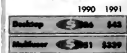
Other products included the following:

- Decnet Interface for Aviiion Systems, which allows Aviiion customers to mail messages, transfer files and access DEC VAX-based applications.
- Systems Network Architecture Token Ring for Aviiion Systems, for connection over Token Ring LANs to an IBM Application System/400 or an IBM 9370.
- X.400 for Aviiion Systems and

RISC pays off

Sales of Data General Corp.'s RISC-based systems are booming, with most of the sales in midrange systems.

Value of shipments
(in millions)



Source: Computer Intelligence/Strategy

Transmission Control Protocol/Internet Protocol for Aviiion Systems.

Support for the Simple Net-

work Management Protocol standard has also been added.

Dennis Doyle, vice president of the North American Data General User Group, viewed the announcements as a positive step toward expansion and interconnectivity.

"It is a way of blending into an office situation whenever and wherever it is needed," Doyle said, adding that the products will particularly benefit DG resellers and sophisticated end users.

DeCastro sounds proprietary death knell

BY HELEN POICE
SPECIAL TO CW

MORRISTOWN, N.J. — Edson DeCastro, one of the driving forces in the boom-and-bust minicomputer industry, predicted last week that proprietary architectures, mainframes and minicomputers will be obsolete by the end of the decade.

"I'll be very surprised if there are any 386, VAXs or MV systems left by the end of the decade," DeCastro predicted, referring to the flagship proprietary systems offered by IBM, DEC and the company he founded, Westhrom, Mass.-based Data General Corp.

The more flexible client/server models available under the Unix operating system will

become the open computing platform of choice for midrange and high-end information processing before the decade is over, DeCastro said in a speech here to the Venture Association of New Jersey.

The software migration to client-server computing with Unix will be piecemeal, according to DeCastro, but it will gradually reduce mainframes to mere data repositories and will eventually render them obsolete.

"Someone will figure out that they're too expensive to use just to keep data, and then they'll replace them with database servers," said DeCastro, who retains an honorary title as senior chairman of DG.

The longtime DEC engineer, who left that company 23 years

ago to found DG before reportedly being ousted as chairman earlier this year, predicted that even IBM will find itself relying on reduced instruction set computing (RISC) systems to replace flagship proprietary systems.

"I think IBM is concerned they will never be able again to enforce a proprietary operating system," he said.

DG has already embarked on an aggressive RISC system strategy that, while not eliminating the MV series, has clearly overshadowed the proprietary systems (see story above).

In response to a question about DG's early stumble with personal computer offerings, DeCastro said that the company did not understand the channels of distribution and that "we were too focused on where the return on investment was highest — the MV series."

Pike is a New Jersey-based freelance writer.



DeCastro's Proprietary systems a vanishing breed

Applications builder giveaway announced

BY J. A. SANGE
COWLEY

Bettering their own and software developers would rather build custom applications with modules than from scratch, Silicon Graphics, Inc. is scheduled to announce today that it will give away object-oriented applications builders with all of its hardware.

Early users of the product, called Iris Explorer, said it cut the time of building a new application and led to greater efficiency by increasing experimentation in developing applications.

Brad DeGraf, president of deGraf/Associates in Hollywood, is building an interactive world atlas to be displayed at the United Nations. Using Explorer, he

takes satellite data on surface elevation and color, for instance, and processes it to extrapolate the brightness of the earth's surface. "Explorer provides a way to put it together almost tactically," deGraf said. "It allows experimentation. In one day, I can do 50 to 60 experiments. Otherwise, I couldn't do that."

Saves 50%

Dynamic Graphics, Inc. in Alameda, Calif., a third-party software vendor for oil and gas exploration, creates custom programs with the new software in about half the time it takes without it, according to Glenn C. Hansen, marketing, third-party relationships, at the company.

However, not everyone is happy with the product. A third-

party vendor who asked not to be named said it will create hardship among software vendors and buyers for the same niche, as Silicon Graphics is giving away the product and other vendors have to charge for theirs.

On the other hand, said Mike Wilson, scientific marketing manager at Viewpoint Technologies, Inc. in Santa Barbara, Calif., it will be competition, but it is not geared for end users.

While Silicon Graphics' part of Explorer will be bundled with its machines beginning in late 1991, other software companies and individuals are writing modules to be included in the package, some of which may cost consumers, according to Paul Kozits, director of graphics systems marketing at the company.

CORRECTIONS

A chart accompanying the June 17 article, "Imaging saves money in huge bankruptcy cases," mistakenly indicated that the images are distributed on compact disc/read-only memory. The images are distributed on write-once read-many optical discs.

A July 15 article incorrectly stated a year-end 1991 target date for delivery of a graphical front end for the KnowledgeWare, Inc. Application Development Workbench/RAD. Kevin Jennings, an information services analyst at Washington Water Power Co. and a user of the KnowledgeWare product, had said he was expecting that component in late 1992. Jennings also said his company is working toward a cooperative processing, not a client/server architecture.

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NEWS SHORTS

U.S. information policy urged

Delegates to the 1991 White House Conference on Library and Information Services approved 94 of 132 proposals to President Bush and Congress on issues of national information policy and access. Among the recommendations were the following: Congress should update copyright law to account for new technologies to give users greater access to information; the government should promote the linking of all issues and businesses by fiber-optic networking; and Congress should enact legislation to foster the development of the National Research and Education Network available to all libraries.

Sundevil hacker sentenced

Burt Majette, the first person to be charged in the Operation Sundevil investigation, was sentenced last week to 120 days in a "shock incarceration" center and five years probation and was ordered to pay restitution of nearly \$30,000. Majette, who authorities said used the handle of Doc Savage, was charged in March with telephone and credit-card fraud, among other crimes. Majette pleaded guilty to a reduced charge of a single felony in May.

Stockholder sues Ashton-Tate

Disgruntled Ashton-Tate Corp. stockholder Edward Michael has filed a class-action suit against the company, claiming it settled for too little compensation in its recently announced plan to merge with Burdett International, Inc. Under terms of the tentative agreement, Ashton-Tate stockholders will receive a fraction of a share of Burdett common stock valued at \$17.50 a share. A spokesman for Burdett said the allegations, which were filed in Delaware Chancery Court, are without merit, and the Scotts Valley, Calif., company will fight them.

1486-based PC hits \$2,500 mark

San Francisco-based Lightspan Computers, Inc. put a \$2,496 price tag on its own 33-MHz Intel Corp. 1486-based personal computer. Lightning's new PC was designed to run at 50 MHz, and Lightning will offer customers a 1990 upgrade to the 50-MHz chip when it becomes generally available. The basic system includes 1M byte of random-access memory, a 100MB video hard drive and a 1,024- by 768-pixel resolution IBM Video Graphics Array-compatible interfaced monitor.

RS/6000 enhancements on tap

IBM is expected to unveil some high-end additions to its RISC System/6000 line on Wednesday. No new models are expected, although a low-end offering is slated for release later this year. According to IBM, the company will announce two-dimensional and three-dimensional graphic offerings and a new high-end scientific visualization system. A source said the latter will be targeted against Silicon Graphics, Inc. and Stardent Computer, Inc., adding that he expects IBM will talk about new technologies such as imaging assist processors and high-speed channels, which enable users to build high-end graphics.

Aerospace firm outsources

Defense and aerospace contractor LaBarge, Inc. last week outsourced its information systems function to St. Louis-based McDonnell Douglas Systems Integration Co. The five-year contract is valued at \$2.1 million. LaBarge's move to outsourcing was spurred by its purchase of a complex contracting software system.

X.500 white pages to get trial

A "white pages"-type directory for electronic mail users is set to begin trials early next year. The goal is to provide a secure listing of commercial E-mail users with name-search capabilities and other features. Eleven private companies, including AT&T, BT World America, Inc., General Electric Information Systems, IBM, MCI Communications Corp. and the U.S. Postal Service will test an X.500 messaging system.

More news shorts on page 100

Unisys rides off with Avis deal

Rental car firm picks Unisys for workstation contract worth up to \$12M

BY ELLIS BOOKER
OF STAFF

GARDEN CITY, N.J. — After nearly a year of test-driving the wares of three workstation vendors, car rental giant Avis, Inc. awarded Unisys Corp. a contract for 100 systems earlier this month.

If those 100 installations work as expected, Avis said, it will top Blue Bell, Pa.-based Unisys to supply workstation replacements for the 2,200 dumb terminals now in its domestic rental locations. That two-year deployment could be worth \$10 million to \$12 million.

The color-screen workstations will be the most visible part of Wizard IV, the latest phase of Avis' worldwide reservations network. Wizard IV replaces Wizard III, a 7-year-old network primarily based on IBM 3270

monochrome terminals linked to Avis' central mainframe over a private wide-area network.

According to Carl Valentino, vice president of computer equipment and acquisition at Avis, the prime benefit of the intelligent workstations is that they will be able to function even if cut off from the IBM 3090 600E here at Avis' world headquarters.

Steve R. Adams, vice president of data processing, said a reliability review is under way at the data center.

"We're looking at overall reliability," Adams said, noting that while the host mainframe, which runs IBM under MVS/XA, has 100% availability for two of the past three months, "when some of the databases fail, it can cause trouble."

Unisys won the Avis bid with its Intel Corp.-based CTOS workstations. CTOS, an integrated systems and message-based network operating system, was created by Convergent Technologies, Inc., which Unisys acquired in 1988.

Avis picked Unisys, AT&T and IBM from a field of 50 vendors to build Wizard IV workstation prototypes, which it began testing earlier this year. The first 100 Unisys systems will be placed on major Avis airport counters in the Northeast this summer.

Although the contract deals with only the U.S. sites, it may be expanded to include Avis' international locations as well. In total, Avis has some 14,500 terminals in 26 countries.



3090

FROM PAGE 1

and Database Manager functions embedded in OS/2. Extended rather than full the expense and network administration headaches of running LAN software, said Ken Elder, vice president and chief information officer.

The group currently runs Novell, Inc. Network on the 40 LANs installed to date because one of its accounting packages originally required a network operating system. At the time, Network was deemed superior to IBM's LAN Server, said Lyle Cooper, senior technical analyst.

When the accounting vendor ports to the Database Manager portion of OS/2, we'll have the option of eliminating Novell," said Jerald S. Noble, director of telecommunications and PC support.

"We don't require Novell connectivity in the wide area," Cooper said, "but we do require OS/2-to-OS/2 connectivity among our databases. For that, we use the wide-area software connections in OS/2."

Noble added, "To connect two OS/2 LANs together this way" without bridges or routers "costs \$1,300 to \$1,700 at each end. Network-to-Network connections cost more than \$12,000 at each end."

What users primarily give up

by not running a network operating system is transparent access to resources on other networked devices, stated Tom Nolle, president of consulting firm CMI Corp. in Norwalk, N.J.

"This translates into standard third-party software not running on the network," Nolle said.

Currently an OS/2 Version 1.3 shop and beta-test user of the 32-bit OS/2 2.0, it is slated to ship from IBM by year's end. The society is executives said they use OS/2 as the desktop operating system of the future.

"In five years, very few office systems will be without OS/2," Elder predicted. He described

OS/2's multitasking rival, Unix, as "the most uniformly integrating system" he has worked with. He also pointed out that "there's still no database manager in Unix."

According to Cooper, "The true benefit of OS/2 is its communications capabilities. When you buy OS/2 [Extended], you get a relational database server and a host of communications gateway services for free."

Steven F. Kuekes, vice president of product development at Tanager Systems Corp., a manufacturer of PC-to-mainframe links, said the interest in OS/2 is much greater today than it was a mere two months ago because such OS/2 obstacles as lack of applications and high price are being addressed.

"With [OS/2] 2.0, users will be able to run [the multitude of] DOS/Windows applications. Also, IBM is saying that users can get OS/2 free if they buy a Personal System/2 or for \$99 if they upgrade from DOS. Originally, OS/2 Extended was \$895," Kuekes said.



American Cancer Society's Elder (left) and Novell plan OS/2 LANs and network operating system

That is exactly what the nonprofit's 18-person development team has done. System testing started last week for the next release of database software to be delivered in September, said Charles H. Naghey, senior director for development and operations.

The release includes the integration of what were three separate mainframe databases of donors and 2 million volunteers into OS/2 relational databases that will reside in 57 out-of-office divisions. An IBM 3090 in Austin will be retained as a mirror database to the OS/2s.

Dbase upgrades pledged

Portland's Kahn seeks to calm users about merger impact

BY JAMES DALY
CHICAGO

SCOTTSMILEY, Calif. — Portland International, Inc. last week tried to calm jittery Ashton-Tate Corp. Dbase users, who are nervous about the fate of the deeply entrenched database following Portland's \$439 million buyout of its former rival.

Soon after Portland unveiled plans for swallowing up Torrance, Calif.-based Ashton-Tate, major questions began to arise about the future of Dbase, which is not compatible with Portland's Paradox. Several analysts and an Ashton-Tate insider said they expect the plug to ultimately be pulled on Dbase.

Chairman Philippe Kahn, however, said Portland will continue to upgrade Dbase, at least until a Windows version is released later this year.

Portland will also continue to sell and support Dbase IV across multiple operating systems, including Apple Computer, Inc.'s Macintosh, Digital Equipment Corp.'s VAX and Sun Microsystems, Inc. platforms, as well as five desktop Unix systems.

The company said it also plans to support and enhance Ashton-Tate's Interbase server across many platforms, including Unix and VMS. "We will protect customer investments," Kahn said.

After that, the situation becomes less certain. Portland plans eventually to take both Paradox and Dbase customers to a new generation of database.

That migration path will be paved by the Object Dbase Compiler, which will act as "the glue between the two databases," said Rob Dickerson, general manager of

Portland's database business unit. The new architecture will include a programming language and other software tools to create applications that can share data from Paradox, Dbase and other programs. A ship date was not announced.

Jack Detrick, director of data processing at Cedars-Sinai Hospital in Los Angeles, said that completely scrapping Dbase would be a mistake. "I've got a lot of Dbase applications running here at the hospital, and I'm not about to stand up in front of the departments and say we're

going to convert them all to Paradox," he said.

Instead, he would be amenable to a merged product using the Dbase programming language and the Paradox interface.

Kahn said the key to the merged product will be Portland's background in object-oriented technology, which means that users will be able to create new programs by reusing chunks of existing ones.

The finishing touches

Completion of the union is subject to, among other things, the approval of the government and each company's shareholders. The transaction is expected to be completed later this year.

In related news, Portland reported revenue

of \$77 million for the first quarter ended June, an 88% increase over the \$41 million reported for the corresponding period last year and a 9% gain over the \$71.8 million reported for its fourth quarter. Net income rose to \$9 million, or 56 cents per share, a 94% gain over the \$4.6 million reported for the corresponding quarter of 1990.

Sales of Dbase IV Version 1.1 helped Ashton-Tate chalk up quarterly net revenue of \$60.1 million, or 11 cents per share, a 25% increase over last year's \$44.1 million figure for the similar quarter. Net income for the quarter ended June 30 was \$2.8 million, or 11 cents per share. The company lost \$12.6 million, or 47 cents per share, during the corresponding period in 1990.

Compaq to enter Japan

TOKYO — Compaq Computer Corp., the world's second largest maker of IBM-compatible personal computers, is moving into Japan, the world's second largest PC market.

Compaq ended three years of market study last week by opening Compaq K.K. According to a Compaq spokesman, the company expects to release a full range of XT/AT bus and Extended Industry Standard Architecture PCs for the Japanese market by the end of first-quarter 1992.

The spokesman also said Compaq will not attempt to create an NEC Corp. clone. NEC is the dominant vendor of PCs in Japan. Compaq will support DOS/V, the standard Japanese PC operating system, but said its Japanese-market PCs would be usable in any language around the world. Most vendors produce Japan-specific machines.

Spokesman John Sweeney said Compaq chose to enter the market now because the Japanese are moving toward a standard PC architecture.

Compaq named 29-year IBM Japan employee Masaru Murai president of the Japanese subsidiary.

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IBM sales

FROM PAGE 1

IBM skirted recent speculation that it might lose money, reporting a \$114 million profit for the second quarter — a 92% drop from profit logged during last year's second quarter. Revenue fell 22% in the year-over-year comparison, to \$4.2 billion.

Perhaps more distressing than the numbers was their source: IBM's equipment sales — the company's traditional stock in trade — fell a precipitous 22% from sales logged in last year's second quarter.

When's the rebound?

Analysts were relieved that IBM stayed profitable but cautious about how quickly the company can turn things around.

"The economy will rebound at some point," said Martin Reisinger, an analyst at Duff & Phelps, Inc. "IBM will make it through its product transitions." But, he added, "competitive pricing isn't going to go away. It's going to get worse."

Several analysts said that quality shipments of new Enterprise System/9000 mainframes could lure fourth-quarter sales, traditionally the firm's strongest. That was a message IBM drove home, telling analysts it believed it could sell as many of the new systems as it could build this year.

Apple, once IBM's counter-

culture competitor and recently its key strategic ally, etched its own worry lines on Wall Street last week. Its revenue increase of 12% was clouded by a \$53 million net loss that analysts did not expect.

Given the guidance he was getting from the company, "I didn't expect anything that bad," Duff & Phelps analyst Brandy Brandon said.

Two popular Macintosh mod-

A little more of Apple
Revenue and profit for Apple Computer Inc. in the second half of 1990 and 1991.

	Revenue	Profit
Second half 1990	\$2,248	1.6M
Second half 1991	\$3,278	2.1M
Growth rate	46.14%	31.25%

Source: Computations by *ENR*

els — the LC and the Classic — helped boost revenue to \$1.53 billion for its fiscal third quarter ended June 30, up 12% from the comparable quarter last year. But whopping restructuring costs buried the firm \$53 million into the red.

About \$100 million of the restructuring charge has been assigned to move facilities out of the costly Silicon Valley and into less expensive locations, according to Apple.

AT&T's profit swelled 26%

to \$828 million on revenue that increased by 5% to \$9.5 billion. In a prepared statement, AT&T Chairman Robert Allen said that anticipated continued strong performance in the second half of the year, based on the assumption that the economy is picking up steam.

But Allen also said that anticipated restructuring charges, including those associated with the firm's merger with NCR, could offset profit by as much as \$4 billion before the year is over.

Also joining in on restructuring accounting was Texas Instruments, Inc., which posted a \$157 million quarterly net loss on revenue up 6% to \$2 billion. The quarterly loss included a pretax charge of \$130 million to fund an aggressive employee reduction program aimed at cutting TTI's worldwide headcount by 3,200.

Lotus Development Corp., meanwhile, logged a 5% revenue increase to \$186.4 million; profits plummeted 61% to \$9.1 million, however. Lotus Chief Executive Officer Jim Manzi, in a prepared statement, said the loss was a result of ongoing product line transitions and that the firm expects product shipments during the second half of 1991 to translate into stronger numbers.

Sun's latest means to prevent market eclipse

BY J. A. SANGE
OF ENR

Already under assault in the high-performance workstation race, Sun Microsystems, Inc. is scheduled to announce today systems designed to stave off competition looming in low-price systems.

Sun said it will replace the Sparcstation SLX with the ELC model. Priced the same as the earlier model at \$4,995, the ELC has a faster clock and is rated at 20.1 Specmarks (the benchmark of the Systems Performance Evaluation Cooperative), up from 8.8. Sun will also reduce the price of its IPC model, introduce a higher performance IPX and improve the performance of the Sparcstation 2.

However, analysts said last week that the interim measures of increased performance and decreased cost on Sun's current line pale under the threat of low-priced workstations expected from IBM and Hewlett-Packard Co. by the end of the year.

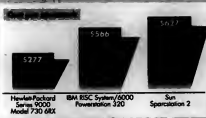
Sun has said it would have a high-end multiprocessing system by the end of 1991, and despite persistent speculation to the contrary, the company is sticking to that time frame, a spokesman for the firm said.

Following that system, according to sources, Sun will develop its next-generation line around the next release of the Scalable Processor Architecture (SPARC). Chips from that version are expected to become available later this year.

According to Joe Nichols, director and vice president of marketing at Rios Technology, Inc. in Austin, Texas, the Sparc chip that Sun will be using in its next generation of workstations, code-named Finagle, should have "slightly higher" millions of instructions per second rating than HP's 76 MIPS.

A shake-up in eight Momentum alone may be sufficient to keep Sun in the No. 1 market share position over the short term. But, said Andrew Al-

Overwhelming success
Sun Microsystems, Inc., which posted gains with low-cost, high-performance systems, has seen Hewlett-Packard Co. and IBM move in on its turf.



CV Chart: Janet Gonsky

Bank deal

FROM PAGE 1

of the two, with \$74.1 billion in assets and 277,000 employees vs. Manufacturers Hanover's \$61.3 billion in assets and 18,000 employees.

Each bank's IS management is centralized, spokesmen for Manufacturers Hanover and Chemical said. Chemical has approximately 1,900 IS employees and three major data centers in New York, Princeton, N.J., and Houston, a spokeswoman said. The data center in downtown Manhattan, N.Y., is located in the same building, but is separate from one of Manufacturers Hanover's major data centers. The major systems at Chemical include mainframes from IBM and Amdahl Corp.

"The spokesmen said plan have not yet been finalized regarding how the two IS employees may be combined or how many IS people may be laid off.

Still, it is a virtual certainty that systems personnel will receive split lips.

Manufacturers Hanover had already embarked on a downsizing program to consolidate eight data centers into two. That project was expected to reduce costs by about \$10 million in 1992 and about \$20 million to \$30 million

by 1993 (ENR, Nov. 12, 1990).

The banks said last week that 70 branches will be closed and 6,200 people will be laid off if the deal goes through. Both banks instituted hiring freezes the day the merger was announced.

"There will be thousands of [IS] layoffs," predicted M. Arthur Gillis, president of Comput-

THERE ARE significant opportunities to improve the level of quality and array of services."

MICHAEL ZUCCHINI
FLEET/NORSTAR
FINANCIAL GROUP

er Based Solutions, Inc., a New Orleans banking systems consultancy. "Banks' noninterest expense item on the profit-and-loss statement is going to look beautiful at the cost of the people who have to bear the burden," he said.

However, more benefits than just cost reductions may be realized. "There are significant opportunities to improve the level of quality and array of services," said Michael Zucchini, executive

vice president at Fleet/Norstar Financial Group in Providence, R.I., which completed the acquisition of the Bank of New England last week.

"It's been my experience that with a common base of technology, you can make available new products faster," said Zucchini, who declined to comment on the proposed Chemical/Manufacturers Hanover merger.

About one-third of the 3,000 employees in IS and operations have been laid off in the Bank of New England acquisition, with a projected savings of \$90 million in those areas, Zucchini said.

Manufacturers Hanover and Chemical "have some real tough decisions to make," said Judge Fowler, senior vice president and director of systems development at the First Union National Bank in Charlotte, N.C. "Historically, large banks have not made decisions very quickly."

Fowler has lived through similar situations — numerous times. First Union Corp., the bank's parent organization and the nation's 16th largest banking company, has acquired 25 banks in the past six years. "At least 1,000 consultants will want to come in and help them, but I don't think you can buy your way out of it."

Senior Editor Clinton Wilder contributed to this report.

Sun remains the dominant player in the market for reduced instruction set computing systems with more than 50% of sales, but both HP and IBM have raised the ante with high-end systems that offer either a price or a performance advantage.

Sieve Tirado, product line manager at Sun, acknowledged that HP's Model 700 has better I/O performance but said Sun's products remain less expensive. "We may not beat them, but we're close," he said.

Prospects dimming?

Not everybody sees it that way. "From what I can see, Sun is lagging behind," said Bill Grundy, software program manager at Hitachi America Ltd.'s Semiconductor and Integrated Circuit Division in Brisbane, Calif. Grundy said he is evaluating Sun machines, but "HP looks like a clear winner."

lison, editor of the "RISC Management Newsletter" in Los Angeles, Calif., "next year, things might change" in the face of increased competition from HP, IBM and the Advanced Computing Environment consortium.

In the meantime, Sun is expected this week to reduce the price of the Sparcstation IFC, a color, dual-fall model, from \$9,995 to \$6,995. The IFC, the successor to the IPC, is priced at \$13,495, with speed more than doubling, from 11.8 Specmarks to 24.7.

Last, Sun will provide a performance kick to its Sparcstation 2, which was introduced in November 1990. Its Specmarks will jump from 21.2 to 24.7, utilizing a software compiler preprocessor from Rock and Associates, Inc. in Champaign, Ill., that will not be available for 90 days. The price will increase from \$14,995 to \$15,495.

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Guide pulling for IBM

BY ROSEMARY HAMILTON
OF STAFF

BOSTON — Although IBM's recent financial performance has raised serious concerns throughout the industry, the company can at least count on its most influential user group to keep the faith.

"We have confidence in IBM that they will continue to ship the products and services the membership wants," Ben Parke, president of Guide International Corp., said in an interview at the IBM large-systems user group meeting held here last week.

Parke also noted that bad news for IBM becomes bad news for Guide, so "it is in our best interest" to see IBM pull out of its sales slump.

He said he expects that to happen because the firm is implementing a sound buy-optimize strategy. Parke said Guide's only complaint is that it would like to see IBM deliver products faster.

"IBM's customers always want it to do more," Parke said. "Surely, they would say, 'Why can't you deliver software products faster?' They will probably never meet expectations there."

Guide was launched in 1956 and today



Parke says IBM's good health is in Guide's interest

includes members from 2,500 firms. While it has long been known as the big-iron user group, Guide also includes users of Application System/400 and RISC System/6000 systems.

The organization has a close and very private relationship with IBM. At each of its three yearly meetings, which are closed to the press, Guide compiles a list of product requirements and presents them to IBM.

Parke said IBM continues to meet Guide requirements in its large-systems efforts and added that the group is pleased with its work so far on both the AD/Cycle and System/390 launch were also direct responses to Guide proposals.

FBI snags DEC thieves

BY CAROL KILDEBRAND
OF STAFF

The Federal Bureau of Investigation snatched a ring of thieves last week that allegedly netted more than \$6.4 million by selling stolen computer boards and other products from Digital Equipment Corp.

DEC, which has filed a civil racketeering suit seeking profits lost as a result of the alleged scam, said it cooperated with the FBI during the 24-year probe. The civil suit, filed June 12, names 20 persons, some of whom are also named in the federal suit, DEC spokeswoman Nikki Richardson said.

In a separate incident, Kris David Wise, a former DEC employee, was charged last week with attempting to sell stolen DEC boards worth more than \$500,000.

The thefts are hardly an isolated event in the computer industry, observers said.

The Digital Dealers Association has cooperated with DEC on more than five occasions with respect to suspected stolen property, according to James Claypole, chairman of the Ethics and Industry Practices Committee of the association, a confederation of used equipment dealers.

"It is in our best interest to get to the bottom of theft rings because it creates unfair competition to us legitimate dealers," Claypole said.

Former DEC employee Steve Kleime, now at reseller Computer Sales International in St. Louis, said he was not surprised when he heard about the thefts. "I worked for DEC for 9 1/2 years," he said. "This was going on clear back in the early '80s." Kleime said he thought DEC was a popular target because it did not keep close track of serial numbers, making it easy for a machine to disappear.

Following the return of a 158-count indictment in Boston's U.S. District Court, the FBI and the Internal Revenue Service began arresting 16 individuals on charges of racketeering, money laundering, transportation of stolen property and money transaction violations.

The indictment alleged that the defendants used a contract held by Wadsworth Recovery Systems, Inc., and bribed warehouse employees to gain access to DEC warehouses in Athol, Mass., and Whitinsville, Mass.

The stolen equipment was resold through two main conduits: The Moore Group, Inc. and KBG, Inc.

The FBI is seeking control of assets obtained as a result of the activities, which reportedly took place from February 1989 to September 1990, as well as \$6.4 million in profits. Among the items subject to forfeiture are a Ferrari Testarossa, a Jaguar convertible and all of the stock in China Grill, a Boston restaurant.

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Michael L. Sullivan-Trainor, Senior Editor, Computerworld, in the March 25, 1991 issue

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OSI wooing large-business users with Netexpert

BY ELIZABETH HOKWITT
OF STAFF

FOLSOM, Calif. — A 14-person company formally started targeting end users last week with a network management system that, according to several satisfied customers, delivers the

functionality, ease of use and multivendor openness that the industry's big hitters have been promising for years.

After targeting OEMs and carriers for about two years, Objective Systems Integrators, Inc. feels ready to go after business users, spokesman Richard Vento

said. Priced at about \$300,000, Netexpert is slated for large corporations that rely heavily on complex multivendor networks.

That end-user market seems to be ready and waiting. Three large businesses, which requested anonymity, said they plan to include Objective Systems in re-

quests for proposals currently in the works for integrated network management systems. Objective Systems is doing "ongoing consulting" at American Express Travel Related Services Co. on developing expert systems-based network management applications, Vento said.

DHL Worldwide Express "has a strong interest" in the kind of functionality that Netexpert is said to provide," said John Payne, a communications architect at the package handler. "So we would view the system very favorably if it proves out."

Netexpert brings to its new market an impressive list of industrial-strength customers. Regional operating company Pacific Bell and global carrier Infonet Services Corp. are using the product to monitor and troubleshoot the networks that serve their customers. I-Net, Inc., a Washington, D.C., network systems integrator and facilities manager, now uses Netexpert to tailor network control center operations to individual customers, a spokesman said. Infonet likes the flexibility with which Netexpert can be configured to the carrier's par-

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NETEXPERT IS slated for large corporations that rely heavily on complex multivendor networks.

ticular configuration of network devices and connections, said Jim Anderson, director of engineering and software development. "There is no such thing as a shrink-wrapped network management system because each user's network is different."

Products from Nymex Corp., AT&T and IBM "provide a baseline product that is not terribly open, and if you want to do anything special, you have to contract for the vendor's services," Anderson said.

"Netexpert allows you to filter, parse and correlate alarms from multiple proprietary element management systems," said Roy Haxak, executive vice president at Mill Valley, Calif., consulting firm The Lido Organization, Inc. "Many systems do that now, but they tend to be focused on a particular networking product or computer manufacturer's view of the world."

Pacific Bell was impressed by Netexpert's rule-based system for determining which user devices and circuits would be affected by a given outage, systems analyst Rod Rucker said. The local carrier began using Netexpert in April for one high-priority customer service and intends to use it to monitor its 45M bit/sec. backbone, he said.

Objective Systems plans to build a support organization to handle end-user customers, Vento said.

Netexpert runs on Sun Microsystems, Inc. Sparcstations. It is said to support more than 20 proprietary network interfaces, Open Systems Interconnect protocols and IBM's Netview.

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Mainframe Compatibility?

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"To us, SAA is the future, and we're not waiting for it to happen, we're making it happen."

Daniel Cavanagh, CIO
Metropolitan Life Insurance Co.

To say that Metropolitan Life has a history of far-sightedness is putting it mildly. They were the first insurance company to install a computer system.

Today that vision continues with their use of IBM Systems Application Architecture,™ or SAA.™ In fact, while some companies have been "wait-and-see" about SAA, MetLife is decidedly pro-active.

"Nobody ever accomplished anything by waiting," says Daniel Cavanagh, MetLife's CIO, "so when SAA was first announced, we organized a team to study it, to see how it could help us.

"Right away we found advantages. One, SAA is a standard that MetLife, our suppliers and customers can all use and understand. Two, it works with elements we already have. When you've got 35,000 users and 140 million lines of code, that's important. Three, it's an architecture that supports our plans for future cooperative systems. And four, SAA looked like it could improve our development process."

An application.

As tools for building an SAA system became available, MetLife built one. It's interesting to note where.

"Our first application is for underwriters, who have a direct effect on our bottom line."

Underwriters decide if an insurance applicant is a good risk, and risk is what determines the policy's price. Doing the job right means cross-checking several databases.

"Before SAA," says Mr. Cavanagh, "our underwriters paged through screens in sequence, scribbling notes as they went. Now, using OS/2*, they can see several remote

and local applications at once, in windows on the screen. So it's easier to compare sources, to make better decisions to respond more quickly. They've got more time to go the extra mile, both for the company and the customer."

An expectation.

"Also, MetLife intends to grow, but not at the expense of service. With our SAA systems, we expect to provide faster, higher quality service as our business expands."

For a new technology, SAA has been surprisingly versatile, in part because SAA makes it easy to plug in modules. The word processor for the underwriter workstation was purchased from one vendor, the help system from another, and both were integrated with MetLife's application.

A reaction.

"But the important thing to know about our move to SAA," according to Mr. Cavanagh, "is how we're doing it. We don't have a timetable for going 'all SAA.' That's not realistic. What we do have is a plan to create SAA applications as needs arise. We're showing the underwriter's application around the company and already people are saying, 'That's great, how can I get something like that?'"

"SAA just isn't an all-or-nothing deal. You can build as you need, and you learn as you go. But if you don't start, you never get anywhere."

"We have started, and so far we're quite pleased with the results."

To learn about SAA at Metropolitan Life in more detail, call IBM at 1 800 IBM-6676, ext. 852.



Businesses wise up to potential benefits of AI

BY JEAN S. BOZMAN
OF STAFF

ANAHEIM, Calif. — Artificial intelligence is not just for rocket scientists and academics anymore, according to users who gathered at the American Association for Artificial Intelligence (AAAI) conference last week. Airline information systems staffs, petroleum engineers, submarine designers and steel makers have jumped on the AI bandwagon during the last two years, according to some of the 3,600 conference attendees.

Many are adding inference engines and expert systems to update or modify appli-

cations programs. "I came here to see what's coming out of the AI labs so I can figure out what kind of features will be appearing in commercial products two or three years from now," said a Northrop Corp. software planner.

In many cases, IS planners are looking to AI to shorten applications development time and to add new flexibility to aging applications.

New AI tools coming to the market allow users such as Shearson Lehman Brothers, Inc. to create new applications in six to eight weeks, compared with former development schedules of six months or more, said Tom Murphy, a first vice

president at Shearson Lehman who spoke at the conference.

Many other applications were cited by users, including the following:

- Longtime AAAI member Roberto Gonzalez, a senior software manager at Venezuela's Lagoven SA oil company, said he used AI techniques to harness part of one senior engineer's 30 years of well-pumping experience into an expert system.

- Stuart J. Brown, a self-described "LESP hacker" and 20-year U.S. Navy veteran at General Dynamics Corp.'s Electric Boat Division in Groton, Conn., used case-based reasoning techniques to plan engineering-design changes for Seawolf-

class submarines. Case-based reasoning, predicated on Roger Schank's theoretical work at Yale University in the 1980s, allows computers to recall past events and then make inferences that can be applied to present problems.

Systems like these are cited by AAAI organizers as evidence that AI has become useful to corporations that need to re-engineer applications written in the Cobol or C languages.

Rather than throwing such "legacy" systems away, AI is often embedded in the existing code to adapt it to changing business conditions.

"You see lots of new mechanisms [in the computer industry] for data access and data movement," said AAAI President Daniel Bobrow, a research fellow at Xerox Corp.'s Palo Alto Research Center. "We want to turn that into knowledge access and knowledge movement."

"The major theme is the tight integration of AI with existing systems and the further hiding of AI or expert systems at the back end," said Natsim Kiri, program director for applications development strategies at Meia Group, Inc. in Westport, Conn.

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Show and tell

Major AI vendors used the AAAI conference as an opportunity to unveil new features and functions for their software and expert systems products.

Highlights included the following:

- **Neuron Data, Inc.** in Palo Alto, Calif., announced routine versions of the Neuron Object knowledge-based systems development environment for IBM's CICS under the MVS operating system and for Thomson Computers, Inc.'s Neutop operating system.

- **Intelligence Corp.** in El Segundo, Calif., announced ART-IM/MVS 3.5, a new release of its ART-IM knowledge-based systems development tool that was designed to be used with the IBM MVS operating system for mainframes.
- **AI Corp.** in Waltham, Mass., said its KBMS knowledge-based management system can now run as an application under Microsoft Corp.'s Windows 3.0 environment. It had previously run under OS/2.

- **Alex Corp.** in Palo Alto announced a version of Alex Development Systems for Digital Equipment Corp.'s VAX/VMS environment.
- **Information Builders, Inc.** in New York said its Level 5 Object product had been adapted to work on DEC's VAX/VMS systems and would be inseparable with the Level 5 product for desktop computers running Windows 3.0.

- **DEC** in Maynard, Mass., said it would market several AI consulting and training services for outside customers. One program, called Patrol, provides a one-month intensive training course at DEC's AI Training Center in Marlboro, Mass.

JEAN BOZMAN

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ADVANCED TECHNOLOGY

TECH TALK

Animated pictures deal

a Pixar and The Walt Disney Co. have inked a pact under which Pixar will create one or more feature-length animated films to be distributed by Disney's Buena Vista Pictures Distribution. Originally formed in 1979 as the Lucas Film Computer Graphics Division, Pixar was acquired by Steven Jobs, co-founder of Apple Computer, Inc., and the employees of Pixar in 1986. Pixar has won several awards for its computer-generated animated films, including an Academy Award in 1988.

Microscopic chips in sight

Scientists at IBM have picked up individual silicon atoms and deposited them precisely, raising the possibility that electronic devices could be created one atom at a time. The scientists used an IBM-invented microscope to show that it is possible to manipulate individual atoms or clusters of atoms. The scientists said the research is the first step toward a new field of electronics they called "nanoelectronics," but they added that significantly more research would be needed before the technique could be used commercially. IBM said this demonstration was important because it showed that its "scanning tunneling microscope" could be used to wrench atoms from silicon, as they are tightly bound and difficult to dislodge.

Light matchmaker

A New Mexico's defense laboratories and the University of New Mexico (UNM) will link their research expertise in lasers, sensors and other optical technologies. The new group, the Alliance for Photonic Technology, will work on commercial uses for light-based electronics research through joint programs at Los Alamos National Laboratory, Sandia National Laboratory, the U.S. Air Force's Phillips Laboratory and UNM. The group intends to act as a matchmaker for product-specific technology transfer, a director of the alliance said.

GIS sprouting corporate wings

Low cost cited as major reason for GIS emergence in the computer graphics field

BY MICHAEL ALEXANDER
CW STAFF

Geographical information systems (GIS) are showing up all over the place nowadays. The most active users and buyers of GIS technology include U.S. municipal governments, utilities, telecommunications firms, petroleum companies and map-makers. However, the corporate market is growing rapidly, according to Market Intelligence Research Corp. (MIRC), a market research company based in Mountain View, Calif.

The GIS industry is currently one of the fastest growing segments of the computer graphics field, MIRC reported. Worldwide annual revenue last year of GIS software and services was \$2.6 billion and is expected to soar to about \$19 billion by 1995.

The popularity of GIS has grown, thanks to the lower cost and higher performance of personal computers and workstations. The cost of GIS software has declined, too, and that has helped trigger more sales. GIS software that runs on PCs and workstations is priced from about \$500 to \$30,000.

GIS programs are used to combine maps with demographics, corporate revenues, taxes—in short, nearly any kind of numerical information that normally shows up in tabular form. The maps and numerical information are layered in different combinations, allowing managers to make "what if" comparisons and uncover relationships that are not readily apparent when the same information is displayed solely in tabular form, said Anthony Burns, national marketing manager at Environmental Systems Research Institute (ESRI) in Redlands, Calif.

"You can have an unlimited number of layers and create new relationships by overlaying multiple layers of information," Burns said.

Before underwriting property insurance, for example, an insurance company can combine a map showing several city blocks with such data as past claims for fire, flood and other catastrophes; proximity of fire and police stations; kinds of buildings adjacent to the property to be insured; and other pertinent data.

Marketing applications

GISs have been especially popular with large retailers, who use these systems to analyze household income, family size and other demographic data when selecting a site for a new store or preparing to launch a marketing promotion.

"There has been a tremendous up-

swing in the commercial sector in the last two years," Burns said. ESRI, whose founder, Jack Dangermond, is considered the father of commercial GIS, has developed what is widely re-

tained as one of the most sophisticated GIS programs, Arc/INFO. The program contains tools for map automation, spatial analysis, interactive display, address geocoding and database integration and management.



David Peters

garded as one of the most sophisticated GIS programs, Arc/INFO. The program contains tools for map automation, spatial analysis, interactive display, address geocoding and database integration and management.

Petroleum companies are among the early GIS adopters who use the systems for making geographical models, mapping pipelines and the like. Increasingly, they are using GIS to help in the process of site selection and plotting marketing strategies.

"Gasoline prices fluctuate dramatically, yet you see stations in an area like Los Angeles adjust their prices almost concurrently," Burns explained. "I think GIS is helping them see the picture of competition a lot more quickly."

Virtually every company in the For-

ture 500 is using or experimenting with GIS, according to Ginfio Maffini, chief executive officer of Tytac Technologies Corp.'s U.S. operations in Arlington, Va.

According to Maffini, GIS technology is often adopted by a corporation with the urging of "adventurous" IS processing people who are interested in staying in the forefront. "Other times, a senior executive who has some passing familiarity with GIS or a market researcher or other professional responsible for strategic planning will act as a champion for the technology."

Tytac markets a family of GIS programs called Spatial Analysis System, or Spas.

For short, IBM currently markets Tytac's GIS products and earlier this year bought a stake in the company.

Most GIS software for the PC and workstation market runs under industry-standard operating systems and works smoothly with popular relational databases. While implementing a GIS is relatively easy, it requires a change in mind-set, Maffini said.

"Few people realize that to get into GIS, you really have to make a commitment to revisiting the whole data model in the organization," he said. "It's not a matter of throwing everything out, but you have to be careful about geographically referencing information."

Relative importance

Geography cannot be treated as just another attribute in a relational database or "you will miss the boat," Maffini said. "Geography is more than that—it is not just absolute but also relative."

From a relational database containing descriptions of every piece in a jigsaw puzzle, it might be possible to discern what the picture may be, Maffini said, "but it is not until you map the pieces in the right way that you will know for sure."

Several companies as well as federal, state and local governments have gotten into the business of selling data that can be pulled into a GIS. The cost of acquiring data and converting it to run on corporate systems is the most dominant expense in implementing a GIS, according to MIRC. However, the market research firm added, those costs are starting to fall.

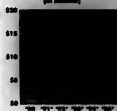
The federal government and several companies are involved in digitizing maps of the nation as well as many overseas territories that will eventually be marketed as an off-the-shelf base map, according to MIRC.

Also, as the number of GISs expands, more base maps will be available, and there will be no need to duplicate the efforts of others.

Money to be made

PC affordability has lowered the barriers for vendors and users to enter the geographical information systems (GIS) field.

Worldwide revenues for GIS software and services market (in billions)



CW Chart: Dennis St. John
Source: Market Intelligence Research Corp.

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EDITORIAL

Two arms!

Are users really in control, as we've been saying here for some time? According to an executive we spoke with at Novell, the answer is yes. They just don't fully know it. He said it's like the trained elephant analogy, which goes this way:

Elephant training begins when the animal is very young. It is tethered to a stake in the ground and when the animal tries to pull away and wander, ouch! So in time it learns to stop pulling at the first sign of tension.

Within a few years, the baby has grown into the most powerful living thing on land, capable of toppling significant trees to get at the tender top-most leaves. But when tethered to that now small stake, it still resists tugging beyond the first sensation of tension.

In other words, it doesn't know its own strength.

Look around today and see an industry that, despite the up-tempo in merger activity and the growing number of consortia and alliances, is really coming apart at the seams. When you inspect that which is usually billed as an alliance or merger to benefit the customer by way of the promulgation of "standards," generally what you'll find are vendors or groups of vendors posturing against one another: OSF vs. AT&T; IBM and Apple vs. Microsoft; ACE vs. Sun; Borland vs. Lotus and Microsoft. And so on.

All of these alliances and most of the others tout openness and standardization as their goals. So why has the OSF produced incompatible versions of OSF-compliant Unix software? Why are so many groups and alliances lined up against Microsoft, which arguably has promulgated some of the few customer-driven standards in the marketplace? Or you might ask, what has Microsoft done to earn so much enmity?

Are they really driven toward standards? Or are we witnessing the final frenetic efforts to see that you, the customer, do not pull too hard on that tether?

Just consider for a moment what the inexorable march toward greater standardization is doing to so many leading vendors—it's pulverizing them. Apple posted a startling loss, the result of plunging hardware profits across the PC industry because of the increasingly commodity nature of PCs. IBM's proprietary hardware gig is under extreme pressure by emerging client/server technologies that stress openness and scalability.

Is it any wonder that IBM has shunned the SQL Access Group, a 40-member clan doing some positive work to actually speed up the standards process?

If you are cynical, you could conclude that plenty of people out there have a lot at stake in that stake staying just where it is—in the ground. But what a growing number of users are finding is that it doesn't take more than a little spit between the palms, a little tugging with both hands and voila! They discover that the world of choice has gotten bigger, not smaller.

Planetary alignments seem to indicate a possible 2nd eclipse somewhere in the area of Seattle.



LETTERS TO THE EDITOR

Wrong target

Regarding "IBM should remember that shots can ricochet" [CW, June 3], I disagree with Kenneth A. Boudin, who said, "Lessees have long taken for granted the idea that equivalent replacement and reconfiguration parts... are equal in value to the original components and therefore do not alter the original asset."

A theory of politics is, "If you tell a lie often enough, people will think that it is true."

How can a PCM memory company trade your IBM memory for twice as much of its own memory if each memory is worth the same, byte for byte?

Rather than venting this disinformation at IBM, why doesn't the Computer Dealers and Lessors Association (CDLA) take on the Japanese vendors who really do play this game by a very different set of rules?

Perhaps IBM's shots will ricochet. Such an accident is, in my opinion, far more forgivable than aiming the gun in the wrong direction, as the CDLA and its minions are doing.

Eric R. Lewis
Madison, Wis.

Money talks

With regard to "Time-sharing is alive and well" [CW, June 3], it is interesting to note how vendors in each of these arenas have positioned their services.

In the glory days of time-sharing in the '70s and '80s, each vendor was providing a unique solution to something that the in-house shop could not provide in a timely fashion or, in some cases, not provide at all.

By utilizing proprietary soft-

ware or a generic programming language along with a remotely located computing facility, users could provide themselves with decision-support capabilities and management reports not otherwise available.

Today, the spotlight is on a similar yet different service called outsourcing. Many vendors have focused on its definition as providing computing operations from a remote facility. These services are really application-independent, with the client bringing its existing applications to the outsourcer's facility. Outsourcers are often referred to as computer utilities.

The primary decision-making criterion is one of economics. If it doesn't make good sense to outsource (read: save money or enhance margin performance), all of the ancillary value-added services will not sway the decision in the outsourcer's favor.

W. Merle Orndorff
The Gravis Group
Fairfield, Conn.

Mistaken identity

I read "Teaching misleads new tricks" [CW, June 10] with great interest but also with a sense of disappointment.

Jim Hammons categorized Parillon Computer's multi-processing Server 290 with other "PC servers" and "super-servers," carrying that mischaracterization throughout the article. Hammons' review thus defined architectural and performance limitations that simply do not apply to our products.

Since we launched the Server 290 product family last October, we have consistently defined our system as an application server, and press accounts have con-

ferred by generally using the description "hyperserver" for our product. The distinction is not semantic; it is fundamental to how we designed our product.

We agree that PC servers simply aren't up to the task of managing mission-critical applications. A new class of server now exists that decidedly is.

William B. Patton Jr.
Chairman and CEO
Parillon Computer, Inc.
Mountain View, Calif.

False security

Software piracy is a serious problem, and there is no denying that it costs software publishers. It is distressing, however, to see bulwarks of our legal system, such as probable cause and presumption of innocence, tossed aside in highly publicized shake-downs such as the one at Suspense [CW, June 17].

Any company wrongly raided by the SPA should be entitled to recover all expenses incurred, including the salaries of employees standing idle during the audit. It is unfortunate that the response of the falsely accused is along the lines of relief at being spared the inquisition, rather than outrage at having been corporately violated.

David L. Simon
Burlington, Calif.

Computerworld welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Labaree, Editor In Chief, Computerworld, P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax number: (508) 875-8991; MCI Mail: COMPUTERWORLD. Please include a phone number for verification.

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 - ☐ Mining/Construction/Processing/Refining
 - ☐ Manufacturer of Computers, Computer Related Systems or Peripherals
 - ☐ System Integrator, Value Computer Service
 - ☐ Computer Software/Peripherals Consulting Services
 - ☐ Computer Manufacturer/Reseller
 - ☐ Vendor/Other
- 2. TITLE/POSITION (Check one)**
 - ☐ President/Chief Executive Officer
 - ☐ Vice President/Chief Financial Officer
 - ☐ VP Marketing
 - ☐ VP Sales
 - ☐ VP Engineering
 - ☐ VP Operations
 - ☐ VP Administration
 - ☐ VP Information Systems
 - ☐ VP Computer Services
 - ☐ VP Computer Hardware
 - ☐ VP Computer Software
 - ☐ VP Computer Peripherals
 - ☐ VP Computer Systems
 - ☐ VP Computer Applications
 - ☐ VP Computer Training
 - ☐ VP Computer Support
 - ☐ VP Computer Maintenance
 - ☐ VP Computer Security
 - ☐ VP Computer Networking
 - ☐ VP Computer Telecommunications
 - ☐ VP Computer Graphics
 - ☐ VP Computer Audio/Video
 - ☐ VP Computer Miscellaneous



- 3. COMPUTER ENVIRONMENT (Check all that apply)**
 Types of computers you use or plan to use:
 A. ☐ Mainframe
 B. ☐ Midrange
 C. ☐ Microcomputer
 D. ☐ Other (Specify):
 Languages:
 A. ☐ Basic
 B. ☐ Pascal
 C. ☐ Fortran
 D. ☐ Cobol
 E. ☐ Other (Specify):
 Software:
 A. ☐ Word processing
 B. ☐ Spreadsheets
 C. ☐ Database management
 D. ☐ Graphics
 E. ☐ Other (Specify):
 Hardware:
 A. ☐ Terminals
 B. ☐ Printers
 C. ☐ Plotters
 D. ☐ Other (Specify):
 Peripherals:
 A. ☐ Modems
 B. ☐ Scanners
 C. ☐ Other (Specify):
 Other:
 A. ☐ No Computer Environment
 B. ☐ Other (Specify):

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 - ☐ Mining/Construction/Processing/Refining
 - ☐ Manufacturer of Computers, Computer Related Systems or Peripherals
 - ☐ System Integrator, Value Computer Service
 - ☐ Computer Software/Peripherals Consulting Services
 - ☐ Computer Manufacturer/Reseller
 - ☐ Vendor/Other
- 2. TITLE/POSITION (Check one)**
 - ☐ President/Chief Executive Officer
 - ☐ Vice President/Chief Financial Officer
 - ☐ VP Marketing
 - ☐ VP Sales
 - ☐ VP Engineering
 - ☐ VP Operations
 - ☐ VP Administration
 - ☐ VP Information Systems
 - ☐ VP Computer Services
 - ☐ VP Computer Hardware
 - ☐ VP Computer Software
 - ☐ VP Computer Peripherals
 - ☐ VP Computer Systems
 - ☐ VP Computer Applications
 - ☐ VP Computer Training
 - ☐ VP Computer Support
 - ☐ VP Computer Maintenance
 - ☐ VP Computer Security
 - ☐ VP Computer Networking
 - ☐ VP Computer Telecommunications
 - ☐ VP Computer Graphics
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 - ☐ VP Computer Miscellaneous



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 D. ☐ Cobol
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 C. ☐ Database management
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 E. ☐ Other (Specify):
 Hardware:
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Where does all the E-mail go?

CONRAD BLICKENSTORFER

More often than not, technology is ahead of society's ability to understand its implications.

Cars came before traffic laws, airplanes came before air traffic controllers and telephones came before the FCC and wiretapping laws. The same is true for electronic mail.

Some 12 million people are now using E-mail, and the numbers are growing rapidly. That's understandable because E-mail is wonderful. It enables people to exchange notes in a way that is less formal than a memo but more formal than a phone call. These notes can be answered, annotated, commented on, saved, converted into documents or printed.

What's it for?

The problem is that those in IS management are still puzzling over how to deal with E-mail. Some view E-mail as the modern-day replacement for "water-cooler talk." Others see it as a great tool to manage their staffs, to create project audit trails or as a personal tickler system. In any case, E-mail notes accumulate quickly and fill up huge amounts of disk space if they are not archived or purged. But can you just delete them from the system?

Often, users are the first to say. They want to be able to locate that 15-month-old note

about a meeting or reconstruct what happened to a particular account three years ago.

But you can't simply allow user convenience to be the guide. There are also legal implications to retaining E-mail messages, and the problem is, no one is quite sure what those implications are.

So far, no case involving

E-mail has reached the Supreme Court, and no definitive verdict has been delivered on how long messages should be stored and who should have access to those records. It is likely to stay this way for a while. Even the admissibility of electronic records in court remains a hotly debated issue.

Private business has substantial leeway as long as it respects the provisions of the Electronic Communications Privacy Act of 1986. The act says that messages sent over corporate E-mail are private if the E-mail system allows access from outside the company, but not private if the E-mail is strictly for internal use.

But that's not really a complete answer because there is considerable overlapping with other federal laws, such as the Privacy Act of 1974 and hundreds of state statutes covering everything from wiretapping to the restriction of access to cer-

tain types of information.

Most governmental agencies are also subject to the Freedom of Information Act (FOIA), which allows the public access to an agency's records. Since the FOIA's definition of records includes any written material that is stored on tape or disk, E-mail notes are available to the public



John Gaudin

and are subject to discovery in litigation unless they fall under an exemption such as privacy protection.

That doesn't mean a governmental computer center must retain E-mail indefinitely. Purging is permissible as long as there is an officially sanctioned records retention schedule.

Many states have agencies that oversee such retention schedules. The trouble is that, so far,

few of them, if any, have formulated E-mail policies.

A few months ago, the Electronic Mail Association (EMA) released a guide clarifying the implications of the Electronic Communications Privacy Act of 1986. The EMA suggests that every company create a policy to make it clear to employees what degree of privacy they can expect from E-mail. In addition to protecting employees, such a policy can also serve to protect the company from lawsuits.

Of course, that still leaves the question of where you can turn for advice in drafting an E-mail policy. You could ask your vendor, but chances are, it won't have the answers. A better option is to get together with your company's legal department. The lawyers may be able to clarify your legal obligations. If not, at least they will be equipped to research the problem, and they may be able to turn up precedents or special provisions that apply to your type of business or within your state.

Once a policy is drafted, get the chief executive to sign it and make sure that every E-mail user reads it. This is an area where technology is progressing far faster than the legal system. Don't get caught behind the bag.

Blickenstorfer is chief information officer at a public authority in New York.

IBM: Divided it could thrive

PETER BAKTOLIK



The biggest long-term problem facing IBM is that it and its investors are looking ahead to the days when its

largest Enterprise System/9000 mainframes become available and an upturn in the economy revives demand for the big iron.

While it is inevitable that the economy will rebound eventually, there is no guarantee that demand for the latest and greatest in mainframe technology will also rebound.

In the meantime, the company is imposing an immense bureaucracy and cost structure upon operational units that, independently, might well be able to wage battle with the most nimble competitors.

Under trying circumstances that Mikhail Gorbachev could appreciate, IBM Chairman John Akers has spent the last three years trying to right a structure that history has overtaken. It may be time for IBM to confront the issue of whether centralization makes more sense than central control for the long haul.

Standing alone, IBM's semiconductor, PC and workstation, minicomputer, storage and even mainframe divisions would probably all be left off guard. Able to confront market challenges directly, without having to justify decisions to one another, these units could respond more quickly and effectively to customers and market forces.

Mainframe operations could be fine-tuned into a company with stable growth and high profits. This could only happen, though, if such a company was forced to meet its promises in a timely manner, without the assurance that off years will be made up by some other division.

Just imagine how effective the PC and workstations unit would be if it was freed of the current bureaucracy and overhead. A trim, independent IBM PC company could very well send Compaq and Dell into shell shock.

IBM is increasingly looking like a company where the sum of its parts are greater than the whole. Its long-term future would be better served by making those parts self-sufficient and free to compete with companies that are more single-minded. A dissection into several independent companies could well produce both great returns for shareholders and a handful of vibrant competitors.

Baktolik is Computerworld's news editor.

'Look and feel' litigation leaves users in limbo

Vacillating court decisions only create uncertainty; it's time to rethink the legal standards

ARDELLE C. ST. GEORGE



As software technology advances, the number and complexity of related litigation claims rise exponentially and courts are forced to find new ways to apply traditional property laws to computer software. What is overlooked, however, is that users often become injured parties in this process.

In dealing with recent cases, which involve the copyrightability of the "look and feel" or user interface of software programs, as opposed to simple questions of literal copying, the courts have had a much harder time establishing a consistent body of decisions.

Instead, the courts have proffered decisions that reflect a broad spectrum of statutory interpretations, from liberal to conservative, making it impos-

sible for either developers or users to guess which way the pendulum will ultimately swing.

Actually, a move too far in either direction could be dangerous for internal use.

Many people are concerned that excessive patenting and licensing fees initiated by court decisions may create a deficit of low-cost, efficiently produced goods for many smaller, although plentiful in the current generation of cases claim their systems are unique, mimicking software interfaces to develop competitive (and possibly less expensive) products in the bread and butter of many smaller companies. If protection under the laws is broadened, the concern is that programmers will be prevented from utilizing user interfaces to improve software programs.

On the other hand, inadequate protection of developers' interests could produce a slowdown of technological advancements as another kind of

adverse impact on the marketplace.

Speaking as a user as much as an attorney, I suggest that now is the time for the courts to reanalyze the entire intellectual property regime as it applies to computer software.

Tough task

This won't be an easy task. The courts have long struggled to apply an appropriate mechanism to ensure intellectual property protection for software. In addition, Congress established the Commission of New Technological Uses of Copyrighted Works (CONTU) to find the appropriate legal vehicle.

Although CONTU determined that software is proper subject matter for copyright protection, erudite attorneys, government agencies and even the software industry have questioned whether computer law is fundamentally incompatible with software technology protection.

Other forms of intellectual property protection are also used, which has also initiated debate.

Commentators among themselves as to the appropriateness of the type and extent of protections that should be afforded to an author of a computer work, and the litigation continues.

It is presumably uncontested that some form of protection for software is required to encourage invention. However, so long as the Constitution espouses two — sometimes opposing — perspectives encouraging advancement of the arts and sciences while also attempting to mitigate damage incurred because of an infringement, without defining discrete copyright protection parameters, the tenuous struggle will continue and we will be left lingering in a legal limbo.

St. George is senior corporate attorney at General Dynamics Corp.'s corporate office in St. Louis.



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SYSTEMS & SOFTWARE

Sybase serves up a new SQL

Aims to satisfy user appetites with multiprocessor-capable SQL Server

BY JEAN S. ROZMAN
OF STAFF

EMERYVILLE, Calif. — Sybase, Inc. filed in a competitive gap this month by announcing a version of Sybase SQL Server for symmetrical multiprocessors. Previous versions of the

Sybase software, which handles multitasked tasks, to work properly; a previous version for Stratus Computer, Inc. machines had been expected to debut last year.

"We did try out an earlier version that was supposed to run on Stratus last year," said William

multiprocessor version for several years. Until now, he said, the product "did not share the CPU gracefully with competing batch jobs or other applications. It did best when you threw the whole machine at it."

Kastner said Sybase needs Release 4.8 to boost its presence on midrange DEC VAX and Unix computers, which he made to run in symmetrical multiprocessing (SMP) modes.

Meeting the competition

Competitive products from Oracle Corp. and the Ingres Division of Ask Computer Systems, Inc. have run on SMP machines for several years. According to Ask, Release 6.2 of Ingres supported SMP machines when it was introduced in July 1989; the Oracle database has run on SMP machines since 1988, Oracle reported.

At first, Sybase Release 4.8 will run on just three hardware platforms: DEC VAXs and Unix computers by Pyramid Technology Corp. and Sequent Computer Systems, Inc.; it will be ported to more platforms over time. Prices for the new software package range from \$24,000 to \$192,000, depending on the type of hardware used and the number of CPUs running Sybase.

Sybase said earlier TPC-B benchmark tests showed that Release 4.8 on a two-processor VAX 9000 Model 420 ran at 261 transactions per second. Independent TPC-B tests of the competing Oracle RDBMS and the

RDBMS have both shown rates in excess of 300 transactions per second, but those tests were done on Vaxclusters made up of four multiprocessor VAX 6000 machines.

Yet another Sybase version, Release 5.0, is expected to be announced this fall, including support for many graphically ori-

ented database tools, according to users and analysts. "Release 5.0 is going to take all these different flavors of the Sybase database and make it all one flavor," said a Boston-area Sybase user. "That way, the code will be easier to maintain, especially for those who were running multiple versions of Sybase."

Users battle price hikes with value-based software buying

BY JOHANNA AMBROSIO
OF STAFF

Users are adopting a new method called value-based pricing to help combat the rising costs of software. In this model, users determine what they believe is the software's worth to their organization and use that as a negotiating tack with vendors.

"We buy software based on its price and its value to us," said William Montish, corporate director of information resources management at Armo, Inc., a specialty metals and stainless steel producer in Middletown, Ohio. "If the value is sufficient for us to pay, however it's been priced, we do so. We look for the overall return on our investment."

Armo is not alone. "There's a sophistication on the part of users," said Damien Rindell, an analyst at Sentry Market Research in Westboro, Mass. "They're trying to assess the value to their organizations and not just divide the number of users into the software's purchase price."

Among the factors used in determining value are the follow-

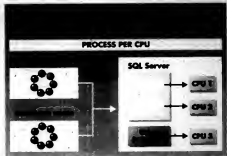
ing: How many people will use the software; what functions the software will perform and how important they are to running the business; and the size and complexity of the software. Because this value may vary from company to company, vendors need to be much more flexible in working from printed price lists than they have been in the past, users said.

Value is vague

Value-based pricing is coming into vogue because of rising software costs and the increased frustration of users. Keith Crawford, manager of computer operations at Deere & Co. in Moline, Ill., said that in 1983, software accounted for 3.5% of Deere's total information systems budget. This year it accounts for about 11%. Then too, he said, the price of maintenance contracts has traditionally risen by 10% or 15% per year. Last year, it was about 26%.

"It's alarming," Crawford said. "You're a captive audience, and you don't have much of an alternative. We're victims of the

Continued on page 30



OW Chart, October 30, 1990

SQL Server relational database management system could be run only on a single processor.

Release 4.8, which is being shipped to Sybase customers as a free upgrade from SQL Server 4.2, will run on multiple processors sharing memory within the same computer. A new feature, called the Sybase virtual server architecture (VSA), will allow multiple Sybase database "processes" to appear as a single process to all client applications (see chart).

Analysts said there had been a significant delay in getting the

Niem, director of distributed applications at Fidelity Investments, Inc. in Boston, which uses Sybase on Digital Equipment Corp. VAX and SubMicro systems, Inc. machines. Niemi said he plans to use Release 4.8 by the fall but anticipates running it on a single-processor VAX machine at first, just to compare its performance with that of the 2-year-old Release 4.0.

Peter Kastner, vice president at Aberdeen Group, a Boston market research company, said Sybase had been working on the

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The ACE gospel according to DEC

BY MARYFRAN JOHNSON
OF STAFF

MAYNARD, Mass. — With the evangelical fervor of the new convert, Digital Equipment Corp. is grabbing every industry pulpit available these days to talk about its dedication to the Advanced Computing Environment (ACE).

As one of the lead companies in ACE, a 60-vendor alliance hoping to set a new standard for Unix-based and reduced instruction set computing (RISC) products, DEC has swiftly elevated the initiative to strategic status.

"All of the software coming out of DEC will have the ACE compliance label," Kurt Friedrich, manager of DEC's open software group, told a gathering of analysts and press recently. "Everything we sell, we will try to push on the ACE platform. That is clearly our direction."

Friedrich summed up DEC's view of what ACE will provide to users succinctly and optimistically: "Lots of hardware. Lots of software. Lots of companies. And distribution channels up the wazoo."

During the next year, a few of the developments customers will see from DEC on the ACE front include the following:

• A new class of RISC servers from DEC, more powerful prices than the current Decsystem 5500 and Decstation 5000. The new systems will be equipped with Turbochannel

buses, complying with the ACE hardware standards.

• Increasing numbers of tools and features for Ultrix that are already present in VMS, such as distributed management capabilities. Later this year, for example, DEC will introduce its Decmedia set of tools for digital

networking expertise and produce layered software products to enhance and extend the initial ACE operating system from SCO.

DEC plans to produce a slew of such products, including device drivers, real-time capabilities, graphics packages, multi-

Being pushed aside?

Facing a projected loss in market share, DEC is banking on the Advanced Computing Environment project to offset growth by Sun Microsystems, Inc., IBM and Hewlett-Packard Co. in the desktop RISC market.

	1990 Units/Market share	1991 Units/Market share
Sun	138,899 38.4%	167,894 31%
IBM	23,618 10.4%	63,914 17.4%
HP	6,160 3.8%	40,060 11.1%
DEC	25,713 11.5%	30,190 8.2%
Other	44,681 19.3%	58,138 12.3%

Source: Computer Intelligence Technology

CEW Staff: Janet Gossamer

multimedia applications development on its Unix-based workstations.

• A late 1991 shipping date for the initial ACE operating system, which will be the Santa Cruz Operation's (SCO) Open Desktop integrated with DEC's Ultrix and the Open Software Foundation's OSF/1.

To make money on the hardware end, DEC will concentrate on building high-end workstations and servers, leaving the low end to vendors such as Compaq Computer Corp. In software, DEC will push its

media software and PC integration.

"We have two advantages: our size and support capabilities and our strong focus on distributed networking," Friedrich said. "The big 'if' is whether the industry will go for it."

Indeed, this "all-for-one" Musketeer alliance business is bound to generate some pitched market battles as companies with similar products pursue the same customers.

"Something running on SCO Unix from DEC has to run on all ACE systems, but if somebody

else's Pathworks or C++ is the best version, that's what people will buy," Friedrich acknowledged. "There will be some skirmishes, but hopefully we will all settle into more profitable markets. The advantage of ACE is that a lot of us will quit losing money on Unix."

The ACE members recently received the 150-page Advanced RISC Computing (ARC) specification, which defines minimum hardware standards to ensure that shrink-wrapped applications will run on ARC-compliant systems.

One key feature that is supposed to give ACE members the flexibility to innovate—in other words, make money—in with ARC-compliant systems is the combination of a hardware abstraction layer and device drivers. Those software layers lie between the operating systems and the hardware itself, giving systems vendors a much-needed place to "add value" while preserving binary compatibility for applications and operating systems.

Software developers will have the choice of writing source code to SCO's Open Desktop or to Microsoft Corp.'s New Technology operating system.

"ACE adds credibility to DEC's open system strategy—credibility they didn't have before," said Peter Schay, an analyst at Gartner Group, Inc. in Stamford, Conn. "There is a big upside potential for them with ACE."

Meeting that potential, analysts say, is highly dependent on

time to market with real ACE products—not just current-model Decstations shipped with an ACE label.

"What will dictate the winner is whoever sells the most out there," said David Evaracha, an analyst at Workgroup Technologies, Inc. in Hampton, N.H.

ACE basics

The Advanced Computing Environment (ACE).

Where 60 vendor companies led by DEC, Compaq, Microsoft, SCO and MIPS Computer Systems, Inc.

What? An attempt to establish a standards-based computing environment based on two hardware platforms and two operating systems—and several SBCs, the market-leading RISC chip from Sun Microsystems, Inc.

While? The hardware platform is based on the RISC chip from MIPS and Intel Corp.'s 80386 and 14686-based systems.

The ACE operating systems are SCO's Unix-based Open Desktop and Microsoft's OS/2. OS/2 version 3, also called the New Technology or NT.

JPL's downsizing initiative raises data integrity issues

ON SITE

BY JEAN S. BOZMAN
OF STAFF

PASADENA, Calif. — Downsizing has taken hold here at the Jet Propulsion Laboratories (JPL), an earthy outpost for interplanetary communications that historically has handled most of its data processing on mainframes.

Huge volumes of digitized space data have to be analyzed following their capture by large astronomicals around the globe. Future missions, though, will allow scientists to analyze space-probe data at their own workstations in the U.S. and Europe.

A decentralized data network, anchored at JPL, will provide a directory of available data files—and let scientists down-

load the stored data to their desktop machines. At the same time, JPL is going to be weeding out some mainframes that have outlived their usefulness, including two older Ultrix Corp. machines.

"We're going to evolve into a computational facility that can do the calculations that people can't do on their local machines," said Haskell O'Brien, manager of communications, computing and network services at JPL's Pasadena data center.

JPL's data network is expanding, but the data administration rules that govern this data center are going to be extended to end-user departments.

"Client/server computing is going to have to deal with the issues of who owns that data and who is going to take responsibility for that data," O'Brien said. Archiving the data is critical, he said, especially now that copies of that data are lost through improper backup and recovery procedures at scientists' offices.

As client/server computing



JPL captures huge volumes of space data for analysis, soon to be accomplished on its client/server system

takes hold at JPL, scientists must take the initiative for data integrity at their own offices.

"For the [mid-1990s] Mars Observer mission, there will be a central catalog that describes each of the data files, and scientists can use the Internet to log in from their home institutions," said Charles Acton, task manager at the Navigation Ancillary Information Facility, which sends spacecraft telemetry data to scientists.

In the past, JPL's information systems staff took all responsibility for data integrity and network security, O'Brien said. An operations staff of more than 75 maintains several IBM mainframes here.

The vast majority of processing jobs were run within the four walls of the 30,000-sq-ft data center at JPL, a National Aeronautics and Space Administration facility operated by the California Institute of Technology.

The data center here serves an estimated 8,000 end users.

The data center still serves as the driver of this planetary data—housing more than one terabyte of data on more than 100,000 IBM-compatible tape reels and scores of disk drives. The large machines that manipulate JPL's data are still available for off-line analysis. They include a Cray Research, Inc. Y-MP—an X-MP was replaced during the July 4 weekend—two Univac Corp. 1100/111 mainframes and two IBM mainframes, a Model 150 and a Model 200.

As local-area networks spread across the 177-acre JPL campus of more than 150 buildings, the data network will become the focus of research here, providing access to a central repository of JPL data files.

In the last three years alone, 80 LANs have sprung up, all attached to the lab's backbone SM bit/Sec. Institutional Local Area Network. The building blocks of JPL's expanding digital network, which extends to scores of universities and to dozens of countries, are the Internet's Transmission Control Protocol/Internet Protocol and the Digital Equipment Corp. Decnet protocols, Acton said.

Value-based

CONTINUED FROM PAGE 27

situation." Crawford said, however, that he is willing to pay a bit more for higher quality products. "BMC [Software, Inc.] software is very expensive, but it's very good. We have alternatives we could use, but we go with the best because it gives us the fewest problems."

One big reason behind the perplexities in software pricing is history. "The true costs of software development are not reflected in software prices," said Peter Barin, a senior analyst at International Data Corp. in Framingham, Mass. "That has led to some really weird economies in the computer industry, for both custom-

ers and vendors."

Hardware suppliers used to essentially give software away, using the profits from hardware sales to offset costs. But as hardware prices continued to drop and vendors needed to derive more of their profits from software, a new pricing model was needed. IBM attempted to address this in October 1986 when it announced tiered pricing, which other vendors have followed.

Fast pace

Complicating the software scenario is the rapidly changing pace of technology. Innovations such as client/server computing, cooperative processing and increasingly powerful workstations have caused both users and vendors to rethink how

software is priced.

In addition to value-based pricing, customers are also working to negotiate up front to avoid some problems altogether.

"The time to protect yourself is at the time of initial purchase," said Frank Kasel, director of information services at Deer Park Spring Water, Inc. in Carlstadt, N.J. He said his company recently signed a \$1 million turnkey software deal and was concessions from the vendor on price protection and other "reasonable guarantees."

Another helping hand may be lent by technology to help manage the whole process. Systems will increasingly be able to track how many people are using the package and which parts of the software are activated.

One thing that may happen fairly soon is an increase in the number of processor categories used for the tiered pricing scheme, according to Bob Djurdjevic, president of Annex Research based in Phoenix.

"We need to go from eight to 80" categories, Djurdjevic said. "But that's really basting the wrong horse because it does not address the benefit that the software delivers to the customer."

Djurdjevic said he expects that, over the long term, users and vendors will get together to negotiate value- or benefit-based software pricing. "The discussion is no longer about whether to do it but how to relate price to value in a way that is fair to both customers and vendors," he said.

Problem prices

Tiered pricing continues to be the leading culprit on users' software pricing hit lists, with site licenses for personal computer packages close behind.

Based on the price of the software on the size of the processor it runs on is "kind of a rip-off," said A. Floyd Griggs, executive vice president of information systems at Signet Bank in Richmond, Va. "It requires no added work by the vendors. It's just a fee you've got to pay."

But, users said, they do not necessarily want to see tiered pricing abolished altogether. William Monteith, corporate director of information resources management at Avrusco in Middletown, Ohio, said that when a limited number of people are using an application, per-user pricing may be called for. But for applications in which many people are using the software, tiered pricing seems fair.

"I can think of two cases where we've used an oversized processor for a particular job because of a high level of performance needed," Monteith said. "As a result, we've had to pay a terrific penalty. In other cases — applications with hundreds of users — tiered pricing seems fine."

The debate over site licenses for PC software is "a key issue for us," said Roger Baat, director of MIS for the Games Group at Air Products and Chemicals, Inc. in Allentown, Pa. "We have 3,500 PCs, and it's a challenge for us to manage purchasing, distributing and keeping track of software for all of them. As PCs become more ingrained and software prices become a bigger percentage of the total, it becomes more difficult."

He said that the centralized IS group has traditionally managed the software-acquisition process but that the time is ripe to do some end-user education as well. "They have to be aware of how to buy; it's not just an MIS function."

JORJANA AMERSON

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Film company rolls along without mainframe

With a little ingenuity, Courtaulds successfully navigates the transition to Unix system

BY JOHANNA AMBROSIO
OF WASH.

A year ago this month, Courtaulds Performance Films pulled the plug on its mainframe, ditched all its applications and switched to a Unix computer. The company has no regrets.

"We're very pleased," said Wesley Reinhold, corporate information technology manager at the Fieldale, Va.-based firm. "Information is now consistent throughout the company, we've got an integrated application, and we're doing

some things we couldn't do before."

On the other hand, he said, Unix is not as robust as the proprietary Unisys Corp. operating system it replaced. "You gain a lot, but you also give up some things," he said.

Courtaulds Performance Films, a subsidiary of London-based Courtaulds PLC, manufactures timing and other types of films used for windows and high-technology applications. The parent, which is traded on the London Stock Exchange, reported revenue of \$3.2 billion for its 1991 fiscal year ended March 31, 1991.

The Performance Films subsidiary, with some 630 employees, contributed about 3% of the total 1991 revenue.

Expansion throughout the U.S. Courtaulds began acquiring U.S. firms in the performance film industry in June 1987, with Martin Processing, Inc. being the first completed deal. That company is now the Fieldale headquarters for Performance Films. Other offices — the results of additional acquisitions — are in Los Angeles, Phoenix and Chicago, among others. Three manufacturing

plants are in Virginia.

"When I first came here from the parent in 1987, I saw that the existing Unisys 1100 mainframe was old, and the applications were not integrated," said Paul Jennings, vice president of finance. All the software for financial, manufacturing and other applications had been written in-house. The mainframe had been installed in 1982.

"We started looking at what we'd really need to support the business," Jennings said. "Coming from the parent, I knew that we'd be looking for other selected acquisitions, so whatever we got would need to support that growth."

The primary requirement included a packaged application that would support all facets of the business, including manu-

I NFORMATION IS NOW consistent throughout the company, we've got an integrated application, and we're doing some things we couldn't do before."

WESLEY REINHOLD
COURTAULDS

facturing process control, payroll and personnel. Another requirement was that all the functions be integrated "so if you updated one part of the program, it would be reflected in the other parts," Jennings said.

In late 1988, Courtaulds selected a Unisys 6000/80 and DataLogic Formula Systems, Inc.'s Cimpro as its primary business application. "We found the package first, and it happened to run under Unix," Reinhold said. The company also uses a Unisys office automation package for electronic mail and other functions.

The new gear was installed by mid-1989, but Jennings said that Courtaulds ran both the new and old systems in parallel for about a year, until the last piece of the new application was installed on the Unix network. Now, he said, "There's nothing left of the old system; it's been removed."

The Unisys Unix computers support about 100 people, including local and remote users. These in far-flung locations are connected to the Fieldale headquarters via X.25 lines. By the end of the year, some 50 to 100 more users — in locations including Chicago — will be linked, Reinhold said. Longer term, he said, the company will hook up some of its overseas offices, including those in Spain, Germany and the UK, into the domestic network.

In addition to the Unix box are about 50 personal computers, which run both MS-DOS and Xenix. Some of the PCs are used to download information into an executive information system written in-house. That system is used daily by Courtaulds vice presidents and chairman, Jennings said. Data is presented in a graphical format. Other PCs are used for "basic PC applications," including Lotus Development Corp.'s Symphony and Software Publishing Corp.'s Harvard Graphics, he said.

Looking back, Reinhold said, "We literally got rid of everything and started over again. Things are just now starting to settle down, but it was worth it. It just takes some ingenuity."

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Democrats' database system meets needs of novice users

ON SITE

BY GARY H. ANTHES
CHICAGO

WASHINGTON, D.C. — The Democratic Senatorial Campaign Committee (DSCC) is staffed by people who typically have political campaign experience but little exposure to computer technology. Nevertheless, their jobs require constant use of computers.

Information systems at DSCC have to match technology to novice users and adapt to the reality that the committee's mission of helping elect and re-elect Democrats to the U.S. Senate ebbs and flows in two-year cycles. The election cycle produces a personnel turnover rate of 50% to 80% every two years.

The DSCC conducts fund-raising events, campaign research and media relations. Like most Washington organizations, it is awash in information — data on donors, contributions, voting records, political events and the media. The data resides in Sybase, Inc. databases on a local area network driven by two Digital Equipment Corp. Microvax 3800s running VMS.

The 40-odd users of the donor database do not see Sybase directly, nor do they use canned applications put together for them by the DSCC's computer staff. Instead they use Natural Language, a reasoning-based database interface from Natural Language, Inc. in Berkeley, Calif.

Users enter free-form, plain English queries. Those get translated to SQL requests, which retrieve information from the database. The results are then translated back into plain English.

DSCC systems administrator Tim Nelson typed in, "List donors who gave more than \$500 last year." A list of donors appeared. Next, he typed, "Compare labor and corporate donors." The system, remembering the content of the previous question, displayed tabular data comprising the number and amounts of donations — exceeding \$500 — from labor unions and companies last year. Nelson selected an entry from a menu and got the same comparison in the form of a pie chart.

"We need to get requests for things like that on paper slips. It might take someone two days to do the programming and get the results back," Nelson said.

He said DSCC's goal is to have a system so simple and intuitive that a computer novice can glance through the user's manual and be able to do useful work on the computer in 10 to 15 minutes. A neophyte can simply type in, "What can I ask?" and get back a list of questions. All that is needed to be proficient on the system is a knowledge of what data is available in the database, Nelson said.

Most of the queries against the donor database came back within a few seconds. Some took much longer. "Sometimes the SQL written by Natural Language is not that efficient," Nelson said.

Natural Language software contains its own database of some 100,000 words and concepts. Between the donor database and Natural Language is something called a Connection File, which holds synonyms, definitions and relationships

unique to the user's data and applications.

Considerable skill and care is needed to set up the Connection File, Nelson said. Natural Language did that work for DSCC initially in a five-week effort. DSCC is in the process now of overhauling and expanding the Connection File to link up with media and political databases.

DSCC paid about \$40,000 for a CPU license for Natural Language and another \$10,000 for training, setup and a custom user manual.

Natural intuition

"I'd always been told that one day we could just ask a computer questions and get answers," said DSCC fund-raising specialist Sheri Lynn Crawford. "That's what Natural Language does."

But use of Natural Language requires more than intuition; users must still learn acceptable phrases such as "show me" and "give me," Crawford said.

Sometimes it falls short of expectations. It belated at Nelson's type, "California," "something most good spell checkers would guess meant 'California'."

When Nelson asked, "What do you know about Jay Rockefeller?" it said it did not know anything about him. He later found four Rockefellers in the database, including John D. Rockefeller IV with an "alias" of "Jay."

According to DSCC director of information services Jeff Ferguson, such limitations can be remedied by putting more rules in the Connection File.

GARY H. ANTHES



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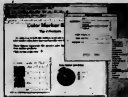
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Robo crew takes a crack at Evanston potholes

BY ELLIS BUCKER
CW STAFF

EVANSTON, Ill. — You've seen Robocop 1 and Robocop 2. Now watch for a four-wheeled enforcer that uses computers, robotics and vision technology to sweep the streets clean of... potholes?

The pothole-repair apparatus is being developed by Northwestern University's industrial research laboratory and the Evanston Research Park, which together won the \$1.1 million contract from the federally funded Strategic Highway Research Program last December.

Arizona-based Crocon, Inc., a pave-

ment repairs equipment manufacturer, is supplying components for the prototype — due to be on the road a year from now — and will market the \$200,000 to \$250,000 system if it proves workable.

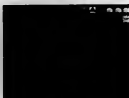
The developers believe their invention will make repairs at one-sixth the cost of traditional methods and will be capable of 50 repairs jobs a day, compared with the eight to 10 jobs of a seven-person crew.

The fully realized contraption will feature a machine-vision-controlled cutter/scrapper and a powerful vacuum to remove debris. A second vision system will determine the depth and dimensions of the hole before a robot-controlled spray gun

shoots a calculated amount of heated patching material into the pothole.

All of the sensors will feed into the control system, which is currently being designed to use two Intel Corp.-based 1486 personal computers for the operator interface. It will also use vision systems and a supervisory computer based on a real-time Unix server from Motorola, Inc.

The computers on board the pothole repair vehicle will be industrially hardened to enable them to withstand the rigors of the road, according to Richard N. Johnson, a research scientist and group leader for sensing and controls at the research laboratory.



dBASE IV
 Ashton-Tate



DIGITAL PHOTO
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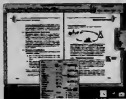
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NEW DEALS

NATO picks Groupe Bull

Groupe Bull recently scored some major victories in the international arena, with contracts awarded in both Europe and the Far East.

NATO has chosen Groupe Bull as the supplier of its integrated office information system for the alliance's headquarters in Brussels. The \$8 million contract calls for the installation of several Bull DPX/2 servers and between 300 and 400 Zenith Data System workstations.

The system will handle all network communications, and it will include database, document retrieval and electronic messaging software.

Responsibility for the project has been assigned to Groupe Bull's subsidiary in Belgium, which will work in conjunction with Bull's subsidiaries in the UK, Germany, North America and Italy. Bull reportedly bid against ICL, Inc. for the contract.

Korea Telecommunications recently purchased two midrange computers from Bull HN Information Systems, Inc. The systems are valued at \$2.7 million and will be installed at the Korean telecommunications company's main electronic data processing center in Seoul, South Korea.

The new DPS 8000 systems will be used for general administrative applications, including payroll, accounting, materials management and human resources management.

The sale was completed by Goldstar Co. Ltd. under the terms of a recently signed, multiyear distribution agreement with Bull that encompasses domestic Korean market activities.

In the People's Republic of China, Bull HN Information Systems will be a supplier of hotel management systems to the hospitality industry. The company has contracted to sell a complete hardware and software package that will integrate all hotel functions into a single information environment.

The Peoples Natural Gas Co., headquartered in Pittsburgh, has signed a \$1.1 million licensing agreement with Dun & Bradstreet Software, a subsidiary of The Dun & Bradstreet Corp.

The utility company will be using D&B's general ledger (G/L) package that operates with IBM's DB2 relational database management software.

In addition to the G/L program, Peoples Natural Gas also licensed D&B's fixed assets and capital projects packages. The software will be used to design and implement a new management accounting system.

NEW PRODUCTS SOFTWARE

Development tools

GT Software, Inc. has announced availability of Comport 3.0, an enhanced version of its Cobol/CICS program generation software tools.

Comport 3.0 allows programmers to read data into varying program types from five different data files. Once a record has been defined in a Comport-generated program, it can be reused in other programs. Users can also control error message line placement within generated code.

Pricing ranges from \$16,000 to \$50,000, depending on processor group

and operating system. A workstation version is also available.

GT Software
1111 Cambridge Sq.
Alpharetta, Ga. 30201
(404) 751-1400

Parameter Driven Software, Inc. has released Unix and Xenix versions of PDS-C Source Generator.

The development tool translates programs written in fourth-generation languages (4GL) into C language code. New releases of PDS-C run under Unix and The Santa Cruz Operation's Xenix. According to the company, C language versions produced by the product have signif-

icantly lower runtimes than the 4GL versions but retain the advantages of 4GL development.

The product costs \$3,000 to \$45,000 depending on platform. An additional user access fee is required.

Parameter Driven Software
359 Enterprise Court
Bloomfield Hills, Mich. 48302
(313) 335-7475

Utilities

Platinum Technology, Inc. has announced Platinum Fast Load, a utility for loading data into IBM DB2 tables.

The product makes the loading process menu-driven and customizable, according to the company. Fast Load also

uses multitasking when possible to optimize loading performance. A Fast Unload product will also be developed.

Pricing ranges from \$13,800 to \$49,800, depending on processor group.
Platinum Technology
555 Watersedge Road
Lombard, Ill. 60148
(708) 620-5000

Serena International has begun shipping Version 2.1.1 of Spectrac, an environment synchronization utility for the MVS operating system.

Spectrac coordinates multiple software environments and tracks changes in data sets, file groups and storage volumes. The product tracks changes systemwide and also synchronizes backup or recovery recovery site and primary site operations.

Pricing ranges from \$15,708 to \$29,172 for a single processor. A site license costs from \$18,480 to \$34,320.

Serena International
2nd Floor
500 Airport Blvd.
Burlingame, Calif. 94011
(415) 696-1800

HARDWARE

Data storage

EMC Corp. has created a 28G-byte 8mm tape backup system for IBM Application System/400 B and D model computers.

The Champion Tape Subsystem uses a 4M-byte cache to increase data input speed. Capacities from 5G to 20G bytes are available. The system appears as one tape unit to the processor, regardless of tape drive configuration.

Pricing ranges from \$16,500 to \$53,500.

EMC
171 South St.
Hopkinton, Mass. 01748
(508) 435-1000

Standard Memories Corp., a unit of Westpac Technologies Corp., has introduced memory expansion kits for the Digital Equipment Corp. Decstation 5000 Models 120 and 125.

The Pincomm 512S kit provides increases in increments of 4M bytes, with a maximum potential system memory of 32M bytes. The Pincomm 512SX version offers increments of 16M bytes, raising system memory to a maximum of 128M bytes.

The 512S costs \$545, and the 512SX costs \$2,660. A lifetime warranty is included with 24-hour turnaround replacement service.

Standard Memories
9 Watney
Irvine, Calif. 92718
(714) 563-7500

Cambex Corp. has announced two 8mm streaming tape storage systems for the IBM RISC System/6000 platform.

The Cambex Certainty 6800-80 offers 2.5G bytes of storage per tape, and the 6800-90 model provides 5G-byte capacity. A small computer systems interface cable is included with each system.

The 6800-80 is priced at \$5,750, while the 6800-90 costs \$9,950.

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Roger A. Peterson
Director of Information Systems
Kawasaki Motors Corporation

“I can't remember when I didn't read *Computerworld*. It's been at least ten years now.

“It's the one place I can go every week to find out the most current information on technologies or applications that Kawasaki might want to pursue...like relational databases, E-Mail, and that sort of thing.

“It gives me a reading on what real people are doing out there...so I know if I'm onto something that's leading edge and that has proven business applications.

“When I get *Computerworld*, I don't just let it sit. I open it up and scan the table of contents to quickly find the articles I want to read. And sometimes I'll flag a story I know somebody else on the staff will be interested in, attach a little post-it note, and send it on.

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 Ashton-Tate

Upgrading option not always an easy one

ANALYSIS

BY MICHAEL FITZGERALD
OF STAFF

What do minor surgery and a personal computer upgrade have in common? Each inflicts about the same amount of pain and agony on the victim.

In recent months, though, several board makers have introduced easier paths for users to do their own upgrades, at least from Intel Corp.'s 80286 chip to its 80386SX. Intel, Compaq, and Waltham, Mass.-based Axi, Inc. all make "plug-and-play" processor upgrades.

However, analysts said they did not see a large demand for

such upgrades.

"It's a stopgap measure," said Will Pustie, editor of "The Practice Report" in Baltimore. "You aren't getting what you would've gotten with an in-board card, but you'll get a modest boost in performance, and you'll get the 386 architecture."

Pustie said users should probably expect a 50% performance gain with a product such as Intel's Supasnap-386. He suggested users view snap-in processor upgrades as a way to try time if what they really wanted were 1486 machines, or if they thought the 80386 market was heading for a shakeout.

Added Richard Zwickelmann, senior PC analyst at International Data Corp. in Framingham, Mass., "I question how many they'll sell. How many companies are going to get out

and spend money to upgrade [their 286s], given that they're maybe at the end of their life anyway? It's not just a buy-down

buy new machines, rather than go through an upgrade process. But at Security Pacific National Bank, where approximately one-third of the PCs are 80286s, the company is examining its upgrade options to see if it can eventually give users better memory management and the ability to run Microsoft Corp.'s Windows.

"Products we've seen before are relatively complicated to install, and we had problems with compatibility when we've installed them," said Andrew Garvin, a systems support professional at Security Pacific. Garvin said the firm was looking at Intel's Supasnap-386 module, Kingston's SX/Now and

Turns installed two options

The large installed base of older technology PCs represents both an immediate upgrade here and an indication that many users are content with their current options

U.S. installed base (in millions)	
1990	1991*
80286	15.3 17.7
80386	4.2 6.3

* Projected

Source: Intel Corporation

kind of thing, where everybody's going to be doing it."

Most 80286 users contacted agreed they would probably just

Systems business.

This brings up the question of binary compatibility between AIX and the new environment. "There's not a lot of shrink-wrapped [AIX] applications," Johnson said, noting that most users have a lot invested in custom-built programs.

No more AIX?

The object-oriented software will indeed replace AIX. At a recent press briefing, IBM officials said it was too early to tell if binary compatibility between the two operating systems would be an issue, but they did promise to slowly migrate users to the new object-oriented platform by integrating pieces of object-oriented technology into AIX over time.

An object-oriented environment would be "spectacular," but it would also mean a new standard, said Russell Silverman, a quantitative-modeling ana-

lyst at Metropolitan Life Insurance Co. Noting that Unix "has finally standardized to a large extent," he said Unix users would probably resist migration unless IBM finds some way to encompass Unix within the object-oriented environment. "A lot of people will want some level of backward compatibility."

On the other hand, users said they would welcome the Macintosh interface with open arms. They are also excited about the prospect of Apple-sanctioned reduced instruction set computing (RISC) machines.

"The need for a graphical interface for Unix, is of course, very great," Silverman said. Several Unix interface standards are available, but they all — "particularly Motif" — require a lot of upfront programming to be user-friendly, he said. Silverman said he does not expect to have that problem with the "to-

Express 386 from Seta Technology, Inc. in Sunnyvale, Calif.

Garvin said the bank wants to replace its 8086s with 80386 machines but wants to give 80286 users the capabilities of the 80386 without having to pay what new machines cost. Processor upgrade options from the firm Security Pacific is considering list for \$405 or \$605, while prices for a 386SX/20-MHz machine from its vendors range from \$3,000 to \$5,100.

Installing the new processor upgrades takes about 15 minutes, manufacturers said. The PC must be opened, the microprocessor located and pulled out and the upgrade board plugged into the space.

Analysts said users should be wary for performance reasons of purchasing an upgrade that does not include cache memory. Cache memory, which does not cache memory with its upgrade, said cache can create software compatibility problems.

AIX users wary after IBM/Apple agreement

BY PATRICIA KEEFE
OF STAFF

AIX users, who may have the most to gain from the fledgling alliance of IBM and Apple Computer, Inc. are asking more questions than their OS/2 counterparts.

Overall, AIX users appear pleased with the prospect of IBM working with Apple on an enhanced version of AIX. However, this partnership, which for some constitutes the ultimate in strange bedfellows, has some AIX users a little on edge.

Looking beyond promises from IBM and Apple to produce an enhanced AIX command to

both platforms, these users are asking some tough questions about the impact of the new, jointly developed object-oriented operating system.

For starters, Brian Johnson, a spokesman for the Washington, D.C.-based AIX Users Group, said his members want to know if the partnership's plan to build an object-oriented operating system are going to replace AIX.

"This alliance is nothing more than a guarantee that we have the best and most responsive solution in focus and intensity on AIX, the RS/6000 and OS/2," said Joseph Guglielmi, general manager of marketing business development for IBM's Personal

tally icon-driven" Macintosh interface.

"The current AIX user interface is a better job than they have done in the past, but they still have a long way to go," said Nancy Costa, application support manager for the Scientific and Engineering Systems Group at J. M. Huber in Edison, N.J. She added that the Macintosh interface would "certainly" be an improvement.

Silverman noted that Apple does a better job of releasing and maintaining operating system software but conceded that the question of whether AIX would get better or worse with an Apple alliance is very up in the air.

Also intrigued by the prospect of seeing the Macintosh interface in Edward O'Brien, MIS director for the city of White Plains, N.Y. He also indicated an interest in Apple's forthcoming RISC machines.

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PC-based support tool helps decision makers

BY KIM S. NASH
CW STAFF

He knew he would have to ditch out the dollars, but on which fax technology: a fax machine, board or service? Jim Barnes contemplated the question for several weeks before handing the problem over to his IBM Personal Computer XT clone.

The answer — a fax board — came quickly after he plugged variables into Decision/Decisions, a PC-based decision support package from Dalton Diagnostics, Inc. in Toronto.

Barnes, editor of *Canadian Machinery & Metalworking*, a Toronto-based magazine for makers of metal products, first stated his objective — "to find a faxing technology." He then outlined a more specific goal: "to decide on an effective way of faxing documents that fits my budget and has enough functionality to handle my work load."

The next levels of the program's seven-step problem-solving method led Barnes down a path where he plotted in trade-

offs and the package analyzed his priorities, measuring possible solutions entered by Barnes against criteria he deemed im-

portant, such as convenience, price and versatility. Like other decision-support packages in a market, which Brannum Consulting Group, Inc. in Ottawa estimated has grown at annual rates of 25% during the

past couple of years, Decision/Decisions asks for simple yes or no responses to some questions. But it also elicits less quantitative answers from users. For example, rating the convenience of a fax board vs. a fax machine might get a "low to medium" response from users but "medium to high" from others.

"Decisions are rarely cut-

according to Doug Neal, vice president of Decision Resources Corp., a consulting group in Washington, D.C.

Getting people to enumerate their oft-unconscious rules of thumb for decision-making is valuable, Neal said.

Barnes, who has used spreadsheets and databases to solve problems said he prefers Decision/Decisions because "it forces you to think about lots of factors, but in a systematic way."

However, he said he is skeptical that a stand-alone decision helper such as Dalton's package can make it in this increasingly competitive market where corporate users want to share data across different hardware and software setups.

"People don't have any use for products that don't interoperate with others," he said. When shopping for decision aids, first look at whether the package can run under IBM's OS/2 or Microsoft Corp.'s Windows, then make sure it can communicate with other software on various hardware platforms, he advised.

Decision/Decisions, which is available now, runs on DOS 3.3 on IBM PCs and compatibles and is the second product from 2-year-old Dalton, a scientific and business software developer.

Facit extends printhead life

A new facet of printing was revealed as Facit, Inc. unveiled new printhead technology in its two newest products last week.

The E950 and E960 are dubbed "Flexidors" printers, after the proprietary technology that extends the printhead life to 1.5 billion characters. Its ramp design allows it to tilt and print diagonally rather than vertically to either two lines simultaneously in draft mode or single-line, high-resolution printing. According to the company, the printhead is easily replaceable.

"We're mostly going after the low-end industrial market," said company spokeswoman Christine LeCompte, pinpointing typical uses as warehouse/shipping forms and labels, invoices and health care and insurance forms.

The E950 offers IBM Proprinter XL and Epson EX-1000 emulations, with a DEC LA-75 version also available. It can print text and graphics and carries a list price of \$3,799.

The E960 also includes Facit's 5162 interface and offers bar code and variable-size-character printing. It costs \$4,549.



Dalton Diagnostics' Decision/Decisions leads users through a seven-step problem-solving routine

portant, such as convenience, price and versatility.

Like other decision-support packages in a market, which Brannum Consulting Group, Inc. in Ottawa estimated has grown at annual rates of 25% during the

and-dried, so we had to build that efficacy into [the product]," said Phil Paulson, Dalton's vice president.

The inexactness of the process makes the \$149 package different from others in its class,

Marketplace back in business

Lotus canceled Marketplace: Business, but user interest has revived it

BY CHRISTOPHER LINDQUIST
CSTAFF

CAMBRIDGE, Mass. — Marketplace: Business, a marketing database discontinued in January by Lotus Development Corp., is finding new life at start-up Marketplace Information Corp.

Marketplace Information, established by former Lotus managers, purchased a license for the Marketplace technology from Lotus when it was discovered that some Marketplace: Business purchasers still wanted to use the product even after Lotus ceased production and offered them a full refund earlier this year.

Household's unpopular
In January, Lotus Chief Executive Officer Jim Mani had chided the company could no longer justify the cost of distributing Marketplace: Business office. Marketplace: Business was dropped.

Lotus reportedly received more than 30,000 letters requesting removal of names from Marketplace: Business. The product had also brought an outcry from civil liberty and privacy groups.

Stuart Woodring, director of software strategies at Forrester Research, Inc., a research company in Cambridge, said a smaller firm could probably make a go of it with the product. "Plenty of small companies

live off things that big companies with big overheads can't afford to do." He added that the negative publicity Lotus had received would be unlikely to transfer to the new vendor.

Marketplace: Business is sized at small and medium-size businesses that do not have the resources necessary to develop large-scale marketing databases. Information on more than 7 million U.S. businesses, which was culled from Dun's Marketing Identifiers from Dun & Brad-

street Information Services, is included in Marketplace: Business.

Search and select

Users can search the information and select companies based on criteria such as location, type of business, annual sales, number of employees or area code. The data can then be used to create mailing lists, locate new markets or evaluate market potential for products.

Users purchase "meter credits" that allow them to access information from compact disc/ read-only memory (CD-ROM) using the Marketplace software.

Marketplace: Business is available for a retail price of \$695 with 3,000 meter credits. Credits may be purchased at a price of \$500 for 5,000.

Previous users of the Lotus product are being offered a discounted price of \$545. The product requires an Apple Computer, Inc. Macintosh with a hard disk drive, 4M bytes of random-access memory, HyperCard Version 1.2 or later and a CD-ROM drive.

Windows

FROM PAGE 35

Fulton, The Perryburg, Ohio-based firm is expected to deliver a server at about the same time.

Although Los Angeles-based Nantuckent Corp. does not consider itself a database company per se, its Clipper application development environment has built-in database capabilities that are popular with programmers. President Larry Heimendinger said the company is working on a multipatform next-generation product that uses object-oriented techniques to access database information. No delivery date has been announced.

Microsoft is also hard at work on a Windows database product but has been cagey about when it will lead. The firm recently underwent a frenzied hiring effort to create an in-house pool of experts for its SQL/Server for OS/2 local-area networks. Some analysts said they feel the team would be capable of creating "client" database tools that would fit into Sybase Corp.'s database server for OS/2 LANs.

A dark horse could be Burlington, Mass.-based Alpha Software Corp., whose Alpha Four application has drawn raves from reviewers for its ease of use. A

networked version is expected this fall and a Windows edition is slated to arrive next year, a spokesperson said.

Once large-scale deliveries begin, a hunting market is expected to develop. A Windows-based database will not only reduce the intimidating C prompt, obscure DOS commands and baffling "computers" with graphical presentations, but will tap into a hot trend: client/server computing. Systems administrators are becoming increasingly frustrated with the shortcomings of PC-based database systems and are looking for products that will give them more control over applications and performance.

Information systems professionals are also finding that they can move to systems that provide the power of the minicomputer and the mainframe world with the ease and convenience of the PC. Microsoft's SQL Server is one such product.

Some users, however, remain unconvinced about the need for a Windows-based database. "What are graphics going to do?" asked Rick Blanco, vice president of information systems at Garber Travel Services, Inc. in Boston. "I don't need to sit there with a mouse and draw boxes when I'm doing queries."

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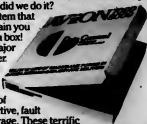
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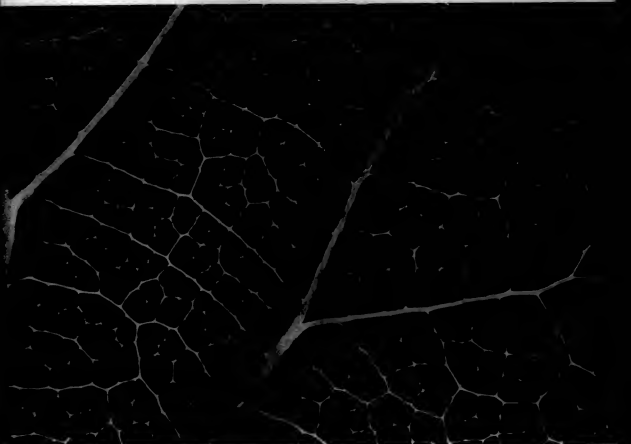
Some say "the network is the system," but we say your network is your *business*. In fact, without a good network you could be out of business.

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Or to have one call you, call us
at 1 800 IBM-6676, ext. 880.

IBM

Keefe

CONTINUED FROM PAGE 37

side of the house, King also rejected the notion that Borland is now positioned to challenge Microsoft and Lotus in the still-up-for-grabs integrated applications sweepstakes. "Working Together" is the new Lotus campaign focused on a common look and feel between Lotus programs that goes right down to identical command names and locations.

"We, over the past year, looked at the Ashton-Tate situation. Outside of Dbase, the products they had were really dog and cat [disimilar]. It's hard to see how much can be made into a product line. All these products came from various

sources, and [Ashton-Tate] hasn't done any integration," King said.

How embarrassing. Now that Borland has snatched up Ashton-Tate, will Philippe Kahn drop Ashton-Tate's suit against Fox Software? As noted by King of Lotus, Borland would wind up talking out of both sides of its mouth otherwise. Borland, of course, is the defendant in a copyright infringement suit filed by Lotus. The situation has tickled a few funny bones, a number of which can be found at Lotus.

Attention shoppers. Everyone is looking for a DOS 5.0 bargain, which is not surprising given the range in prices (CW, July 15). Volume buyers, of course,

have the edge, so low-end pricing may not be applicable to users looking to buy a few copies. Having received a number of calls seeking DOS 5.0 for under \$30, what follows are two resellers that will sell DOS 5.0 at that price under certain conditions: Coresoft in Shrewsbury, N.J., and Spectrum Software in Garland, Texas. As we stumble across more bargain outlets, we'll keep you informed.

Two cents well-spent. Want to air your gripes about network software licensing issues? Give the Micro Manager's Association (MMA) a call at (908) 580-9091. The group is putting together a white paper on the issue, which should provide software developers with recommendations and will welcome the

feedback. The paper should be ready for the MMA's annual conference, slated for Oct. 2 in New York, so you should place your calls soon. Users wondering whether their input will have an impact might want to consider this historical note from Gordon Eubank, president of the Software Publishers Association: "After all, it was a customer mandate that spelled the end for copy protection."

Casting its net ever wider. The New York-based MMA, incidentally, is expanding on a global basis. It hopes to grow its existing base of 750 members to 1,500 by year's end. So don't be shy. You can obtain membership information by calling the number listed above.

Too little, too late? It would appear that in some cases, even in some OS/2 accounts, IBM's deal to resell CC-Mail from Lotus is a bit late. The Royal Bank of Canada, a huge OS/2 account, had al-

Bill's company is giving him the opportunity to get into financials.



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FOR ALL MICROSOFT'S posturing about how OS/2 is dead, Consumer Software has just delivered a beta version of an OS/2 Presentation Manager client for its Network Courier mail system.

recently inked a deal for 15,000 licenses from none other than Microsoft's Consumer Software Division. A very rough survey of users during the past few weeks indicated that few, if any, mail decisions will be swayed by IBM's endorsement of CC-Mail. On the flip side, George Oliver from the Royal Bank notes that for all Microsoft's posturing about how OS/2 is dead, Consumer Software has just delivered a beta version of an OS/2 Presentation Manager client for its Network Courier mail system.

Mea culpa. Somehow I misinterpreted part of a commentary by Will Fattis, editor of "The Fastie Report," on 1-2-3 for Windows. Fastie does indeed think Lotus has the upper hand over Microsoft's Excel for Windows overall, as reported in this space June 17. However, he doesn't think Lotus does the better job of attaching graphics to a spreadsheet document. That honor goes to Excel.

Oh, no, not another one. Yup, they are at it again. Lotus has covered all the platform bases, but they slipped in two new features — a viewer and auditor — into the recently released 1-2-3 Release 2.3. Then they decided to add the same functionality to 1-2-3 Release 3.1. Those features, plus a few more enhancements, led to the delivery last week of 1-2-3 for DOS Release 3.1+. Other additions include Lotus' Solver technology from 1-2-3/3G, a DataLens driver for Borland's Paradox Tables, a three-dimensional multipage worksheet, an advanced database and extended, expanded and virtual memory support. Current users of 1-2-3 Release 3.1 can avail themselves of this upgrade for \$49.

Keefe is Computerworld's senior editor, PCs and workstations.

Which UNIX® RDBMS did Hewlett-Packard®, IBM®, Unisys®, Data General®, AT&T®, Sun®, and Sequent® choose to demonstrate the power of their latest UNIX Systems?

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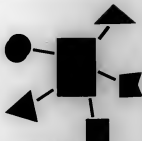
Informix is the number one UNIX OLTP choice. A January 1991 International Data Corporation (IDC) study shows that when it comes to UNIX OLTP applications, Informix products are installed at more than twice as many multi-user UNIX sites as our closest competitor. It's independent confirmation that thousands of companies worldwide rely on Informix-based OLTP solutions every day.

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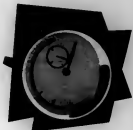
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IDC Study on UNIX OLTP
UNIX On-Line Transaction Processing at Multi-User UNIX Sites (January 1991) states that some 47.4% of sites running commercial applications on multi-user UNIX systems are running OLTP. The study reports that Informix is in use at more sites than any other DBMS for UNIX OLTP applications.



About the TPC

The Transaction Processing Performance Council (TPC) was founded in 1988 to define transaction processing benchmarks and to provide performance data to the industry. Today, 40 hardware and software vendors, including AT&T, Bull, Sybase, Data General, DEC, ASK/Ingres, Fujitsu, IBM, Informix, Hewlett-Packard, NCR, Olivetti, Oracle, Pyramid, Sequent, Siemens, Sun, and Unisys are members.



Heralded MS-DOS 5.0 earns knocks from users

Upgrade still seen as worthwhile, although users find compatibility and support fall short

BY CHRISTOPHER LINDQUIST
CW STAFF

Most users are still singing the praises of Microsoft Corp.'s MS-DOS 5.0 upgrade, which recently shipped its millions copy. But nothing is perfect, and MS-DOS 5.0 is no exception. Users are divided as to whether the compatibility problems that are cropping up are the fault of Microsoft or of other vendors, but all said the benefits of the enhanced operating system make it well worth a few headaches.

Rock Blanco, vice president of infor-

mation systems at Garber Travel Services, Inc. in Boston, said he has installed MS-DOS 5.0 on some database systems and is very happy with the extra conventional memory it gives him. He reported he is still having a few nagging problems, however, particularly with disk-caching programs and some hardware.

Support criticized

Blanco said he is not happy with Microsoft's support. "Every time you call Microsoft, they blame it on everyone else but themselves," he said. "I've given up

on Microsoft for support." Instead, Blanco purchased a book on upgrading DOS, which has been helpful. He is also going to try IBM's version of DOS 5.0. If it works better than the Microsoft version, he said he will avoid using the Microsoft upgrade.

Eric Rantell, a vice president at Purchase Ltd. in New York, said he also had trouble loading programs into upper memory. He indicated that he thinks the problems occur primarily in older programs with ill-behaved memory management, not with MS-DOS 5.0, however.

Optimizing DOS 5.0's memory man-

agement is a problem, Rantell said. Manually configuring MS-DOS 5.0's memory management features can be a matter of hit or miss, unlike some other memory products that include automated optimization, he added.

Despite these problems, however, users are still finding MS-DOS 5.0 to be more than worthwhile and very easy to use. "It's a no-brainer," Blanco said.

However, users are split as to whether the new utilities supplied with DOS are going to be used.

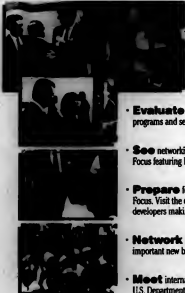
Ken Middleton, owner of KPM Computer Systems & Graphics in Bedford Hills, N.Y., said he is currently using the built-in DOS shell and undelete utility to replace utilities he once had to buy separately. He indicated, however, that most of his users are not using the utilities because "it hasn't been around that long." He also noted that people sometimes forget that the new features, such as the Help command, even exist.

Other users reported that they will continue to use the utilities they are familiar with, even if substitutes are now supplied with DOS.

"I use other programs," said Michael Sheale, senior instructional designer at American Express Co. "It's what I know, so it's what I use."

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X terminal users get remote access to Mac programs

BY CHRISTOPHER LINDQUIST
CW STAFF

X Window System users looking for a way to operate Apple Computer, Inc. Macintoshes remotely may need to look only as far as Planet X.

That's the catchy name that Intercon Systems Corp. in Herndon, Va., has applied to its communications package designed to let users operate Macintosh computers remotely from an X Window System client workstation.

According to Intercon, the product will duplicate the Macintosh screen in a window on the workstation, allowing users to access any Macintosh-based application remotely.

Planet X reportedly allows users at remote sites to view and edit files, troubleshoot systems and train operators without leaving their workstations. In addition, other X Window applications can run on the workstation simultaneously with the Planet X Macintosh session. Information from Macintosh applications can also be cut and pasted to X Window applications.

Security features include passwords, selectable privileges and a password override. The X Window user also maintains master mouse control at all times.

Planet X requires a Macintosh with at least 1M byte of random-access memory for black-and-white graphics, 2M bytes of RAM for color and 3M bytes of RAM if the System 7.0 operating system is to be used. System 6.0.5 or later is also needed.

The product supports a variety of LocalTalk gateways as well as Ethernet adapters. It is expected to ship next month for a retail price of \$295, according to the company.

SUPER CAPACITY

**Externalized By
Micropolis.**



Freehand 3.0: Tools more accessible

Technology Analysis — A roundup of expert opinions about new products. Summary written by New Products Writer Derek Slater.

Rather than encumber Freehand 3.0 — the latest version of its Apple Computer, Inc. Macintosh graphics package — with new tools, Aldus Corp. has made the existing ones more accessible and easier to use.

Drawing/Editing tools: Freehand's drawing precision is markedly better in Version 3.0. Users can edit drawings in preview mode. No new tools have been added, but reviewers still found its drawing and editing tools very strong.

Ease of use: The addition of "Color, Layer and Style" palettes makes these functions easy to manipulate. **Speed:** Freehand's screen redraw rate, although improved significantly in Release 3.0, still lags behind the competition's.

Documentation: The tutorial manual is particularly thorough. On-line Help is context-sensitive.

Service and support: Technical service is free for 90 days and earned a rating of "good" from *InfoWorld*.

Overall: The \$595 Freehand 3.0 is a very good value. Its advantages are strong import/export facilities, editable full-color previews and exceptional ease of use.

Aldus Corp.'s Freehand 3.0

Reviews	Drawing/Editing tools	Ease of use	Speed	Documentation	Service and support	Overall
MacUser 7/91	Improved functionality	Easier to use	Powerful	Excellent	NC	Refining approach
Users						
Christopher Mueller-Wills, Michaels Travel Publications	■	■	■	■	■	Palates cramp screen
Tom Klamon, Theist	■	■	■	■	■	My favorite package
Analysts						
Jerry Stern, Newsweek Computer Systems	■	■	■	■	■	More automated than competitors

Key: ■ Very good ■ Good ■ Fair ■ Poor Reviewer evaluations are excerpts from articles. Refer to actual reviews for details. User and analyst ratings are based on telephone survey. NC: No comment. *Advanced ratings based on 1-to-10 scale.

Vendor financial ratings

Analysts	Long-term stability	Short-term performance
Allied Teble, Madsen Nugent & Co.	■	■

Aldus Corp. is estimated to have profits of \$31.4 million on revenue of \$179.2 million for fiscal year 1991, up from a profit of \$23.7 million and revenue of \$124.9 million in 1990, according to Montgomery Securities.

Aldus responds

Conrad Chavez, product specialist:

Drawing/Editing tools: Contrary to what the reviewers say, there are new functions in Version 3.0. They just don't show up in the toolbar. Draw-quick printers generally work.

Speed: We added features but actually got faster, which shows that speed is a priority for us. But we concentrated on other things in this release.

Illustrator 3.0: Improved text-handling

Adobe Systems, Inc.'s Illustrator 3.0

Reviews	Drawing/Editing tools	Ease of use	Speed	Documentation	Service and support	Overall
MacUser 7/91	Best tools around	Easy to use	NC	NC	NC	Best buy
Users						
Paul Pfeiffer, Time magazine	■	■	■	■	■	Very careful for ease
Phillip Brown, The Art Department Co.	■	■	■	■	■	Stable type tools work
Analysts						
Jerry Stern, Newsweek Computer Systems	■	■	■	■	■	More elegant tools

Key: ■ Very good ■ Good ■ Fair ■ Poor Reviewer evaluations are excerpts from articles. Refer to actual reviews for details. User and analyst ratings are based on telephone survey. NC: No comment. *Advanced ratings based on 1-to-10 scale.

Vendor financial ratings

Analysts	Long-term stability	Short-term performance
Allied Teble, Madsen Nugent & Co.	■	■

Adobe Systems, Inc. is estimated to have profits of \$54.8 million on revenue of \$239.7 million for fiscal year 1991, up from a profit of \$40 million and revenue of \$168.7 million in 1990, according to Montgomery Securities.

Adobe Systems responds

Paul Turner, product marketing manager:

Ease of use: Chart and initial capital functions are not as complicated if you know how to use the product. There's not a single button for every graph function; that's why the graphing tools are included. You can make any kind of chart you want.

Documentation: There's an information window on-line. It has gotten positive user feedback.

With the introduction of Version 3.0, Adobe Systems, Inc. has dramatically strengthened Illustrator, its Apple Computer, Inc. Macintosh graphics package. Of particular note is the package's text-handling capability, the function that had been the product's Achilles' heel. Overall, reviewers found the new version a powerful tool for graphic design.

Drawing/Editing tools: A host of strong text-handling tools has been added. Users can switch fonts, colors and sizes in any text block. Text can be imported and placed on a curved or polygonal object.

Ease of use: Illustrator's interface has been improved for easier use, although reviewers said a few procedures are still clumsy. **Speed:** *InfoWorld* rated Version 3.0's performance "very good," although somewhat slower than that of the previous release.

Documentation: Reviewers gave praise to the printed Help manuals but panned the on-line Help. **Service and support:** Telephone support is unlimited and free, though not toll-free.

Overall: Illustrator, which is bundled with Adobe's Type Manager, Separator and Drawnow software, is a very good value at \$595. Its primary strengths are its powerful editing tools and improved text-handling.

NEW PRODUCTS

Software applications packages

Meca Software, Inc. has announced a version of its Managing Your Money software for the Hewlett-Packard Co. HP 95LX pointplot computer.

The program is produced on a ready-memory card that plugs directly into the HP system and offers a number of money-management features.

The product costs \$99.

Meca Software
327 D Riverside Ave.
Westport, Conn. 06880
(203) 222-9150

Prisma Software Corp. has announced Yearway 2.0, a contact management software system for Microsoft Corp.'s Windows 3.0.

Yearway 2.0 includes a contact database that records contact history, a task and call management system, a letter processor and a report generator. The program supports Windows' Dynamic Data Exchange facility. A network version is also available.

The contact management software system is priced at \$199.

Prisma Software
2301 Clay St.
Cedar Falls, Iowa 50613
(319) 266-7141

Blossom Software Corp. has created Write-in 1.3, a word processing add-in software package for use with Lotus Development Corp.'s 1-2-3 spreadsheet.

Write-in 1.3, which is compatible with all Lotus versions, according to Blossom Software, offers full word processing functionality and can exchange data with Lotus worksheets. The revision includes a compacted file format, a file delete command and enhanced printer control.

Write-in 1.3 is priced at \$129.95. Upgrades from Version 1.2 are available at a price of \$29.

Blossom Software
Building 600
One Kendall Sq.
Cambridge, Mass. 02139
(617) 738-1516

Software utilities

Fifth Generation Systems, Inc. has announced Fastback Plus 3.0.

The backup software utility includes a new window-driven interface, an Express Menu System, unattended backup scheduling and file-server support, the company said. The macro language has also been enhanced, and history files in an Ashton-Tate Corp. Dbase-compatible format have been added.

The price is \$189. Upgrades from previous versions cost \$49.

Fifth Generation Systems
10049 N. Geiger Road
Baton Rouge, La. 70809
(504) 291-7221



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Systems

AST Research, Inc. has announced new options for the AST Premium Exec notebook computers.

A data/fax send and receive modem option and a second serial port adapter option have been added. The data/fax modem, with 9.6K bit/sec. transmission capability, retails for a price of \$499. The serial port adapter costs \$99.

The company also lowered pricing for its Fastboard upgradable architecture boards.

Pricing for the Intel Corp. processor-based boards is as follows: the Fastboard 486/33 with 8M bytes of memory costs \$3,045; the Fastboard 486/33 with 4M bytes of memory costs \$2,595; the Fastboard 486SX/20 with 4M bytes of memory costs \$1,595; and the Fastboard 386/33 with 4M bytes of memory costs \$1,545.

AST Research
16215 Astor Pkwy.
Irvine, Calif. 92713
(714) 727-4141

Micro Express has unveiled a personal computer based on the Advanced Micro Devices, Inc. 40-MHz AM386DX processor.

According to the company, the base configuration of the ME 386-40 includes 4M bytes of random-access memory and a floppy disk drive for \$1,949.

The PC also includes a 64K-byte RAM cache and zero wait-state operation.

A system with an 80M-byte hard drive and Super VGA monitor is priced at \$2,899.

Micro Express
1801 Carnegie Ave.
Santa Ana, Calif. 92705
(714) 652-1400

Data storage

Megabyte Computers, Inc. has developed an internal memory upgrade for the Atari Computer Corp. Portfolio handheld computer.

The service raises Portfolio's random-access memory from 128K bytes to 512K bytes. According to the firm, the memory increase does not appreciably affect the system's battery life.

The upgrade costs \$350, which includes a six-month warranty. The upgraded system is returned to the user within 14 days of receipt at Megabyte, the company said.

Megabyte Computers
909 Melbourne
Hurst, Texas 76053
(817) 688-2950

In the broadest sense, outsourcing is simply the purchase of services externally, rather than supplying them internally. The rationale being that this approach to service can help improve your company's competitive advantage and profitability.

How? By becoming involved in an intricate and extensive business analysis to develop and implement a tailored outsourcing strategy. Such analysis forces a re-evaluation of the use of internal resources and services, while driving your organization toward a tighter focus on its unique value to the marketplace.

These days, no company can "do it all." Mutual dependencies, shared risks, and shared rewards are the new operating goals. In developing a relationship with an outsourcing partner, you can benefit from managing variable rather than fixed costs, and gain access to just-in-time resources. This in turn promotes a re-focusing on growth and competitive positioning.

The Growing Service Component

The pace of change today is quickening. Markets are increasingly global, and organizations see internationalization in vendors, customers, partners, and competitors. As pressure rises to improve productivity and decrease time-to-market, so does dependence on technology—and all the while you're continually driven to become more cost-effective and efficient, without sacrificing quality or customer satisfaction.

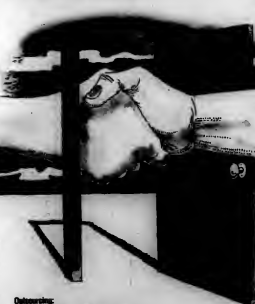
In this context, service has indeed become a major issue. To succeed, you may find yourself expanding the management and execution of support and service functions. But this can prove counterproductive, as you run the danger of diluting talent and focusing attention away from your core business. Meanwhile, the complexity of service and support increases: multiple service contracts with numerous vendors, rising inventory, and greater asset and personnel costs.

Effective management strategists suggest focusing on identifying the core strengths your company already has or can develop. You can then seek ways to limit, eliminate, or outsource those functions in which the company cannot gain superiority.

By determining the appropriate levels of support and service to be negotiated with a technology supplier, you can gain control and focus on your company's unique value.

OUTSOURCING What Does It Really Mean?

Outsourcing is not the equivalent of "taking over the data center," as some may believe. Rather, it represents a deeper, more involved service relationship between you and a technology supplier. It's a strategy for coping (and succeeding) in today's demanding, dynamic business environment.



Outsourcing: Implementing the Concept Modularly

Modularity is inherent to the outsourcing concept. Any outsourcing strategy should be adopted in those areas, functions, or divisions of the company where it makes the most sense—with each module tailored to your unique needs and challenges.

While seemingly a recent development, modular outsourcing is really a familiar business practice. A maintenance contract on a single computer, for example, represents a rudimentary outsourcing agreement. The operation and management of a worldwide telecommunications network is also a form of outsourcing. The extent and magnitude of the operation varies, but the philosophy remains the same.

It is quite likely that an organization's outsourcing strategy will be wide-ranging in its degree of implementation and shared responsibility with a technology supplier. Support services that should be outsourced in a manufacturing plant in one location are probably not the same support services that should be outsourced in a warehousing facility somewhere else.

Vendor Experience Counts

From Digital's perspective, modular outsourcing is an established business practice that we have evolved over our 30 years in business. As fits our corporate and computing style, outsourcing demands a closer, more interdependent alliance with our customers. Our relationships with you are based on a continuum of services that is flexible and scalable—from the maintenance of a single VAX, to the ongoing support of a large multi-vendor installation, or beyond that in managing an entire worldwide communications network.

In its very nature, outsourcing cannot be a one-size-fits-all solution. It is a tailored relationship modeled on your explicit business requirements and strategies. When applied with creativity, an outsourcing strategy can yield powerful short-term and long-term results.

To some of our customers, outsourcing has meant augmenting their internal capabilities without increasing staff. It has also provided a way to keep abreast of advancing technology, bringing expertise to bear on pressing technological problems without deflecting key people from the core business.

Focus on the Core Businesses, and Keep the Competitive Edge Sharp

Gone are the days when gaining a competitive edge depended on owning the largest resource base, research labs, manufacturing sites, and product distribution channels.

Today, our working world is increasingly large and complex. And no one company can excel at all places, in all things. The edge comes now when you define then hone your principal skills and strengths.

An outsourcing relationship with an experienced technology supplier allows you to do just that. The strategy can be modular, with tailored support and service at work at the department, division, or worldwide corporate level.

When you free yourself to concentrate more on doing business rather than operating your business, you gain strategic focus. And that can be the differentiator that spells success.

More on Outsourcing ▶

More on Outsourcing ▽

CHOOSING THE RIGHT OUTSOURCING PARTNER

The key to implementing a successful outsourcing solution is to match your business needs with your partner's capabilities. Here are some evaluation criteria to keep in mind:

Need Position

(1) Current and Prospective Technologies

"Is the technical expertise you need available in sufficient amount?
In the right business marketplace?"

"Is your information technology understood, short-term and long-term?"

(2) Responsive Business Practices and Policies

"Are your practices compatible?"

"Can you make a contract together?"

"Are their workplace issues, such as union, security, environmental, health, and safety factors?"

(3) Financial Structure and Long-Term Viability

"Can you agree to terms of cost-savings, profit, and mutual gain?"

"Are cost structures or business in place?"

"What resources can be reached?"

"What owns the technology?"

"How are the costs managed? Dependent?"

"What are the performance standards?"

"What are the risks and potential penalties?"

(4) The Implementation Plan

"What is the timing needed?"

"What are the stages, benchmarks, and measurements?"

"What are the payment schedules?"

"What are the performance standards and quality measurements?"

"Are service levels agreed?"

"Is there an 'add and change' plan?"

Bottom line, you'll want a relationship that is mutually beneficial, with both parties sharing risk and profit.

Soft Skills

(1) Corporate Culture

"How does the vendor's culture compare with yours? Consider a range of things from personnel metrics and rewards to corporate code of ethics."

(2) Philosophy

"How does the vendor's philosophy match yours?"

"Would you feel good 'hiring' this vendor as an extension of your staff?"

You want an outsourcing partner you can trust and work comfortably with. Involvement and commitment of both executive teams is crucial.

For more information on Digital's modular outsourcing and other solutions, open services, contact your local Digital sales representative.

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Here are the products Digital offers today that will fit right into the developing ACE sites of tomorrow:

ACE-Compatible RISC workstations:

DECstation 5000 Series 100

Model 120 and 125

DECstation 5000 Series 200

ACE-Compatible RISC Servers:

DECsystem 5000 Model 200

DECsystem 5100

DECsystem 5500

ACE-Compatible X86 Personal Computers:

DECpc 433 Workstation networked client and windowing system

DECpc 433T desksize system

DECstation 320xt desktop system

DECstation 320xt desktop system

DECstation 325c desktop system

DECstation 335c desktop system

DECstation 425c desktop system

DECpc 333 portable laptop system

DECpc 320xt notebook system

ACE-Compatible X86 Servers and Multiserver systems**:

DECpc 433T desksize system

application:DEC 433MP

application:DEC 316

application:DEC 325

application:DEC 333

PATHWORKS Client/Server-Based PC

Networking Software to Link ACE

and Non-ACE Systems:

PATHWORKS for OS/2 client software

PATHWORKS for ULTRIX server software

PATHWORKS for VMS server software

PATHWORKS for DOS client software

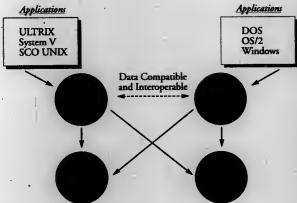
PATHWORKS for Macintosh client software

**Running SCO UNIX operating system.

ACE Players

Along with Digital, these vendors are currently participating in the ACE initiative:

<i>Acer Group</i>	<i>The Santa Cruz</i>
<i>Compaq Computer Corporation</i>	<i>Operation Inc.</i>
<i>Control Data Corporation</i>	<i>Siemens AG Automation</i>
<i>Kubota Computer Inc.</i>	<i>Siemens Nixdorf</i>
<i>Microsoft Corporation</i>	<i>Informationssysteme AG</i>
<i>MIPS Computer Systems Inc.</i>	<i>Silicon Graphics</i>
<i>NBC Corporation</i>	<i>Computer Systems</i>
<i>NKK Corporation</i>	<i>Sony Corporation</i>
<i>Olivetti Systems and Networks</i>	<i>Sumitomo Electric Industries Ltd.</i>
<i>Prime Computer Inc.</i>	<i>Tandem Computers Inc.</i>
<i>Dynalyst Technology Corporation</i>	<i>Wang Laboratories Inc.</i>
	<i>Zenith Data Systems (a Group Bull Co.)</i>



ACE means two operating systems—Microsoft's forthcoming OS/2.0 and the Santa Cruz Operation's UNIX-based Open Desktop—are to be available on a standardized RISC platform based on microprocessors designed by MIPS Computer Systems and Intel-based systems. All are sold by Digital, COMPAQ, and 30 other systems vendors.

Upcoming Events: August/September 1991

Software Forum Planned for September

Digital's Independent Software Vendor (ISV) program is pleased to announce that the second International Business Development Forum is scheduled for 10-11 September 22, 1991, at the Hyatt Regency Grand Hyatt, Resort in Orlando, Florida.

Last year's forum successfully brought together more than 500 developers and distributors interested in expanding into new markets. Plans for this year call for a shorter time to highlight developers demonstrating their applications on Digital workstations. The agenda also includes general sessions, special interest sessions, roundtable discussions, and plenty of networking opportunities.

For more information, call 800-DEC-3000, or fax 508-467-1620.

Discover the Right Solution

Looking for specific product information on current networking products? Or maybe you want to know more about Digital's COHESION Software Development Environment?

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Billed as "tightly technical," the Discovery Seminars are an integrated curriculum of presentations designed to provide you with the most up-to-date products, services, applications, and technical information. Each seminar focuses on a specific solution and how it solves the kind of problems you encounter every business day. Seminars are free to our customers. They're held at local Digital facilities and customer sites at a variety of locations.

The broad range of topics is reflected in this sampling of upcoming Discovery Seminars:

Network Application Support

August 14th, Louis, MO

Electronic Data Interchange

September 5th, Louis, MO

Desktop Integration

September 11/Bakersfield, CA

September 12/Chicago, IL

ALL-IN-1 Phase II: Desktop Solutions

September 17/St. Louis, MO

Digital3 Visualization Seminar

September 17/Rockford, IL

PATHWORKS for Macintosh

September 19/Tucson, AZ

Windows and Workstations

September 19/Pasadena, IL

ClientServer Computing

September 24/Ridgeway, CA

September 24/Anchorage, AK

The Integrated Office

September 24/San Diego, CA

The UNIX Environment

September 26/Las Vegas, NV

Enterprise Managing

September 26/St. Louis, MO

High-Availability and

Real-Time Computing

September 26/Chicago, IL

For more specific contribution details,

plus seminar schedules and registration

information, please request your local

Digital sales representative, or

call 508-456-8000.

Mark your calendar!

Frameworks for the Engineering Environment

*Framework technology provides flexibility for users,
control for managers.*

Computer-based design tools allow engineers to develop complex products faster than ever before. But while these tools solve the challenges of complex product development, they in turn create a complexity all their own.

In electronics design, for example, where four tools would be used to design an integrated circuit 10 years ago, 20 or more are used now. To make matters worse, tools and computer systems are constantly being added or subtracted from the mix to meet changing design requirements or to make use of the latest technology. Libraries of current and archived designs have to be managed, with the ability to track product data generated at all stages of the design process and among all members of the design team.

Just managing such an environment is a tremendous job. Something has to give. According to recent studies, design errors now account for an average of 20 percent of product costs. What is worse, these errors account for 37 percent of product development time.

Enter Framework Technology

One answer to the problem is frameworks, which integrate an engineer's tools and data through a common user interface.

There are two implementations of framework technology available today: engineering design automation (EDA) frameworks and design-data management frameworks. You'll find you'll need a combination of both to address your full range of design management problems.

Specifically, EDA frameworks support a set of closely related tasks, and are usually provided by tool vendors to tightly integrate their own set of design tools. Design-data management frameworks address the higher-level problems of work process management and design-version control across the entire product development cycle. They also help with configuration management and design traceability.

All Engineering Benefits

Design-data management frameworks will go a long way toward helping engineering management to truly manage multi-discipline design efforts that span electronic, mechanical, and software design, as well as documentation.

Each discipline has its own set of sophisticated computer-based tools—and its own set of design process headaches. The right frameworks can make ECAD, MCAD, and CASE all play together



▲
Digital's PowerFrame design-data management framework unites all design tools, data, and processes into one common environment. PowerFrame runs on UNIX workstations and servers from Sun, HP/Alpha, and Digital.

efficiently, and ensure the resulting designs are well matched.

For engineers and designers, design-data management frameworks offload the administrative burden that comes with using multiple tools from multiple vendors, and juggling files among design team members. Frameworks can manage tool input and output data, and the files and file versions the tools generate. They can also manage the design process by automatically invoking tools in a predefined sequence using the appropriate data for each tool run. This ensures that the designer is always working with the right data on the right tool at the right time.

Frameworks can provide the foundation for companies to implement concurrent engineering techniques to improve team and organizational productivity. That means a variety of groups, including manufacturing and support, could participate in design from the conception stage, and that project activities could be performed in parallel. With a multi-discipline design environment under automated control, this now becomes possible. In fact, it could prove to be the most rewarding return of all from frameworks.



Twenty-two leading CAD tool vendors have joined Digital in supporting PowerFrame as the framework standard. They've recognized the need for an open design-data management framework, and believe that PowerFrame offers the most flexibility today for truly open technology.

As members of the PowerFrame System Program, these vendors are encapsulating their tools (and design automation frameworks) within PowerFrame. The vendors include:

ADVA Systems Inc.	Matra Datavision	Schumberger Technologies CAD/CAM Division
Applied Information Systems Inc.	MCCAD Framework Laboratory	Shimadzu Corporation
Cadence Design Systems Inc.	McDonnell Douglas Systems Integration Co.	Silver-Lisco
Data I/O Corporation	Meto-Software Inc.	Swanson Analysis Systems Inc.
GenRad Framework Ltd.	NEC Electronics Inc.	Taradyn Inc.
Harris Corporation/Scientific Calculations Division	Parametric Technology Corporation	Valid Logic Systems Inc.
Logical Devices Inc.	PDA Engineering	Viewlogic Systems Inc.
	Rascal-Rader Inc.	

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NETWORKING

COMMENTARY

Gary H. Anthes

An open connection?

I recently eavesdropped on a woman and learned her name, her account number and her checking account balance. At the time, she had \$7,540.94 at Riggs National Bank in Washington, D.C.

Next, I listened to a man plead with his girlfriend, with whom he had apparently recently had a fight, to forgive him and meet him for lunch. She agreed.

After that, I listened to an Italian woman, a reporter, it seemed, ask a public relations person at a museum about some sort of scandal. "You'll have to fax us your questions," the PR person said.

I wanted to say to the reporter, "Hey, that sounds familiar!" but she wouldn't have heard me. No one could hear me through my office telephone that Monday afternoon, but I could hear any number of two-way conversations as I periodically tested my phone while awaiting repair.

As I listened to this unwanted party line with a mixture of fascination and horror, two things became increasingly clear: First, the security of my telephone system, which I had never questioned, was obviously flawed. Second, a surprisingly large number of telephone calls involve sensitive information passed between people who surely never stop to think someone could be listening in.

It is well-known that mobile
Continued on page 55

Users divided on Apple connectivity plan

Company will take greater role in writing software for connecting heterogeneous environments

ANALYSIS

BY JIM NASH
CW EDITOR

Information systems managers using third-party software to link Apple Computer, Inc. Macintoshes with the outside world — particularly the IBM part of that world — are generally happy with their connectivity.

Some, however, are questioning Apple's continued reliance on third-party companies to develop the bulk of the Macintosh software links to IBM and other minicomputer and mainframe makers.

Apple should continue to concentrate on what it does best: hardware and basic operating systems software, some users said. Others disagreed. They said Apple should take a role in

producing at least some key applications to set a direction for third parties.

In a recent press briefing covering Apple's plan to work with IBM on future hardware and software, Apple executives said the company will take a greater role in writing software connecting heterogeneous — typically corporate — environments.

Jim Groff, acting director of Apple's Enterprise Systems Division, said work was under way to more closely link Apple and IBM when the announcement was made this month. Late last month, Apple began shipping Snap, its software-only gateway to IBM Systems Network Architecture environments.

Whatever Apple's ultimate software development strategy

is, most users agreed that the company must be able to present an interwoven group of products that link Macintoshes in heterogeneous settings faster than most current applications.

"There is a perception that you can't connect Macintoshes to mainframes," said Jamie Sosniak, Unix and office systems manager at the University of California at Santa Barbara.

The perception may be incorrect, he said, "but it is fair to say Apple has lagged behind in the [mainframe connectivity] marketplace."

Mark Ryding, network manager at Evans and Sutherland Computer Corp., a Salt Lake City graphics software maker, said he is disappointed in Apple's MacTCP running under its new

System 7.0 operating system. MacTCP connects Macintoshes to Transmission Control Protocol/Internet Protocol (TCP/IP) networks.

System 7.0 drawback
Ryding said the utility is not fully functional under System 7.0. "It does not give us sufficient control over its function," he said, explaining that there is, for example, "no way to change broadcast addresses under MacTCP."

He said Apple has delayed the ball with TCP connectivity, leaving improvements and add-on components up to third parties. Ryding said he gets the feeling that Apple engineers are saying, "It's not fun anymore; let's do something else now."

In other instances, Apple has been late to the game. MacDFT,

Continued on page 56

Phone overload tagged to large-system congestion

BY GARY H. ANTHERS
CW EDITOR

Recent disruptions to Bell Atlantic Corp.'s and Pacific Bell's common-channel Signaling System 7 (SS7) networks were triggered by more or less normal component failures of the type that occur in any large system.

As switches, called signal transfer points (STP) by manufacturer DSC Communications Corp., attempted to reconfigure the networks around the problems, they sent control and diagnostic messages to other processors on the network. The combination of these network

management messages and heavy network traffic at the time overwhelmed the STPs.

STP software contained routine procedures to deal with such congestion, but they were not invoked because of a bug. The algorithms would have allowed the STP to purge its message queues of excess messages, according to a priority scheme specified by SS7 protocols.

Flawed SS7 specs

Frank Perpiglia, vice president for technology and product development at Plano, Texas-based DSC, acknowledged the bug in his company's software

but said SS7 specifications as laid out by Bellcore for its Bell telephone company clients may be flawed.

Perpiglia said DSC gave some non-Bell carriers slightly different implementations of the software nine months ago, at their request. That software, wrote Perpiglia, had not failed, allowing the switch to throw away low-priority messages, if necessary, to deal with congestion.

According to John O'Rourke, a Bellcore assistant vice president and a leader of the multi-vendor task force investigating the network outages, Bellcore specifications are completely consistent with U.S. and international standards for SS7.

"We have not yet found any flaw in the Bellcore requirements. In fact, we believe that as of this stage of the investigation, it appears that the spread of con-

gestion may have been because of a lack of full implementation of those standards," O'Rourke said.

Unanswered questions

O'Rourke said questions remain about the network, including the adequacy of the power of the STPs to process a high volume of network management messages with very low delays. He said possible delays in updating network routing tables may have contributed to the failures.

It is also not yet known why software errors introduced in April lay dormant until late last month and then struck multiple sites almost simultaneously.

O'Rourke said the task force will continue its work until all parties are satisfied that all contributors to the problem have been found and eliminated and permanent fixes are in place.

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Beta-test users mold E-mail monitor

Soft-Switch redesigned interface to reflect needs of beta-test participants

BY ELISABETH HORTWITT
CW STAFF

WAYNE, Pa. — Soft-Switch, Inc.'s Mail Monitor has successfully undergone beta testing and is now shipping to customers — with several major modifications suggested by beta-test users.

The beta test was extremely interactive, with the result that "the user interface changed drastically from the first to second release, mostly because of beta participants," said John Cornell, a technical analyst at New York agricultural products trader Continental Grain Co.

Soft-Switch was particularly aggressive about eliciting user response for Mail Monitor because customers, many of them Fortune 500 companies, "had quite a bit of info to offer as to how the product functions in their specific environment," company spokesman Stuart Finn said. This applies both to the user interface — "the more people have been playing with the interface, the more stable and functional it becomes" — and to specific electronic mail configurations, Finn said.

While Soft-Switch has on-site facilities to test Mail Monitor with each gateway, the vendor cannot test how the monitoring system will work across a multi-node network of, say, 40 IBM Application System/400s or six IBM Professional Office System hosts, he added.

Soft-Switch officially announced its multivendor E-mail monitoring product last March and released it at the end of last month.

Automatic probes

Mail Monitor was designed to automatically send out probes at intervals to a series of gateways that link different vendors' E-mail systems on a corporatewide network. Because a given E-mail message may pass through multiple gateways before it arrives at its destination, finding out the reason why a particular message or batch of messages did not arrive requires probing each gateway in turn.

For example, Continental Grain's E-mail network consists of a mixture of host-based, local-area network-based and service-based E-mail systems. It is configured so that all U.S. messages to Europe have to go through a New York gateway to the Geneva hub, which then distributes them to other European cities, Cornell said. For example, if a message sent from Chicago to Hamburg, Germany, does not arrive, it is necessary to send a probe to the Chicago, New York, Geneva and Hamburg gateways in succession, to see which gateway is at fault.

Mail Monitor automates a function that was previously performed manually by Continental Grain's data center in Chicago. The center is responsible for keeping the company's global E-mail network up and running 24

hours a day, seven days a week, Cornell said. The firm cannot afford to lose E-mail messages, which are not "about getting together for lunch" but contain crucial data about the status of various trades, he added.

If no one checks the status of the network on a regular basis, a link can be down for hours before anyone realizes it, Cornell said. "Users only realize a message didn't go through when they come back from lunch and still haven't received a reply." An automatic system enables the data center to be active rather than reactive to E-mail glitches, without tying up personnel.

One missing feature that users wanted Soft-Switch to add was a field that displays the average time it took the last five probes to go out to a gateway and come back, Cornell said. "This is very important for setting up the schedule of probing," Cornell said. For example, probes are apt to take a lot longer during the nightly period allotted to backing up the mainframe.



Anthes

FROM PAGE 51

cellular telephones provide little privacy, so you might assume that the guy in the Mercedes Benz ahead of you on the freeway is not a CIA agent talking to his male or a senior executive at IBM discussing the next moves with Apple or Microsoft.

And yet, enough juicy stuff apparently moves over the cellular airwaves to make it worth the trouble to intercept conversations. Virginia Democratic rival and presidential hopeful Gov. Douglas Wilder and U.S. Sen. Charles Robb are embroiled in a controversy involving Robb's receipt of an illegal tape recording of a cellular phone conversation. In it, Wilder was

reported to have discussed allegations that Robb attended parties where cocaine was used. The flap has caused so much embarrassment on both sides that some say the political careers of both men are finished. It is scant comfort to know that both of these branches of privacy occurred in add-ons to the basic Bell telephone service, one in a private branch ex-

change — which took a hit during an ungraceful cutover to batteries during a power failure — and the other in a mobile system. As technology advances, more of these hybrid systems will exist. Privacy laws have failed to anticipate new technologies such as wireless data communication [CW, June 17]. Laws notwithstanding, sys-

tems become more vulnerable as they become more complex, even as incentives to manufacturers become more reliable. Recent failures in two Bell company telephone systems are not completely understood as of this writing. Although no one has suggested those problems produced breaches of privacy, they prove that the unexpected — things that "can't happen" — do occasionally happen.

So, what to do? Drive to the bank whenever you want to check your account balance? No, the U.S. telephone "system" is probably secure enough to make that kind of precaution unnecessary. But Wilder should have known better. No doubt some corporate users should, too. There are surely some communications that merit the cost of encryption or other safeguards yet don't get that treatment because users are too trusting.

"You don't know what you don't know," say the security experts, some of who would like to sell you consulting services or products based on the fear factor. But even experts with no vested interest in the topic insist that many companies are enormously exposed to electronic espionage or accidents involving complex communications systems.

In a report late last year, the National Security Telecommunications Advisory Committee, a presidential advisory group wrote, "Many features that make the current [public switched] network excellent with respect to performance, function and cost make the achievement of high security much more difficult. To oversimplify: Open, accessible, customer-driven networks are vulnerable to penetration and software manipulation."

Anthes is Computerworld's Washington, D.C., correspondent.

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Joiner, Forest enter agreement

BY ELISABETH HORWITT
CW STAFF

Joiner Software, Inc. and Forest Computer, Inc., two IBM business partners that specialize in IBM/Digital Equipment Corp. connectivity, are getting together to mesh their respective product strengths.

Joiner's Inet product supports two-way communications between DEC VAXs and either IBM mainframes or Application System/400s, according to Brian Koenig, a spokesman for the Madison, Wis.-based company. IBM and DEC systems can use Inet to do remote job entry,

terminal emulation and store-and-forward transfer of files in either direction using IBM's Network Job Entry protocol, he added.

However, Joiner's real specialty is electronic mail exchange that involves translating between IBM's Officevision on AS/400 and DEC's AS-In-1 E-mail system on a VAX, Koenig said.

Okemos, Mich.-based Forest brings to the party more sophisticated peer-to-peer and program-to-program connections between VAXs and AS/400s, Koenig said.

Joiner currently uses a bi-directional connection between the two systems,

which is less than efficient, he indicated.

Forest's Connection System makes use of IBM's PU2.1 and LU6.2 peer-to-peer Systems Network Architecture protocols to interconnect AS/400s, System/360s and System/380s with DEC VAXs, according to Forest spokesman John Enck.

Forest specializes in bidirectional virtual terminal access, file exchange and printer access, he added.

The two companies plan to do a series of joint projects to develop connections between IBM and DEC midrange systems, Koenig said. Initially, the companies plan to implement Inet on Top Connection System so that a single gateway can support all of the above types of communications, including E-mail.

NETWORK SHORTS BASF employs large ISDN

BASF AG went on-line earlier this month with what is said to be Europe's largest private integrated Services Digital Network. The network, which is said to support 28,000 telephone extensions throughout the German Chemical company, runs over Nordnet's Telecom, Inc. Meridian 1 switches.

Meanwhile, Siemens AG claims to have finished installing Europe's largest private telecommunications network for Harco-Deere AG, based in Stuttgart, Germany. The network reportedly connects 33,000 stations across Europe using Siemens' Hicom switches. It supports remote terminal access and computer-to-private branch exchange applications, Siemens said.

US West International Holdings, Inc. and the Soviet Union Ministry of Posts and Telecommunications recently said that US West International will provide financing and operational support for three international gateway telephone switching systems in the Soviet Union.

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Apple plan

CONTINUED FROM PAGE 51

a 3270 terminal-emulation program from Apple, shipped after third-party version shipped, Sonnet said. He uses Macminframe, a 3270 terminal-emulation package from Anstar Corp. in Hopkinton, Mass.

"I would much rather have Apple do the connectivity," said Bob Brasington, manager of corporate information services at Richmond, Va.-based Chesapeake Corp. Brasington uses Andrew Corp.'s Tokenaccess, peer-to-peer 3250 terminal-emulation software between the Macintosh and IBM Application System/400 midrange computers on Token Ring networks.

He said he is satisfied with Andrew's product, having watched a programmer during a recent disk drive crash "dicking through six, seven, eight sessions fixing files." Brasington said the paper-making giant is also using Apple's new software-only Snap, which provides up to 64 advanced program-to-program communications sessions on a Token Ring network.

One IS manager, who asked not to be named, said leaving most applications development for independent firms may be a sound strategy, but it can leave standards in the lurch. He said administrators can find themselves working with a hodgepodge of software, not all of which works well together.

Even when the disparate software packages work together, Ryding said, the speed of Apple's LocalTalk network operating system—230K bit/sec.—can frustrate users. "The biggest holdup [to easier connectivity] is in craggy LocalTalk," he said.

State school opts for frame relay

BY JOANIE M. WICKLER
CW STAFF

LOS ALAMITOS, Calif. — State budget cutbacks and saturated data network spell frame relay for California State University, reportedly the first educational institution to embrace the budding technology.

Cal State said earlier this month that it has awarded a \$1 million-plus contract to Digital Equipment Corp. for frame-relay equipment to link its statewide campus sites. The university said it is five nodes into installing 20 Stratacom, Inc. IPX frame-relay-capable T1 multiplexers, which DEC resells.

Frame relay is being investigated by many firms for quick handling of the bursts of data traffic characteristic of intercommunicating local-area networks. It offers the bandwidth efficiencies of traditional packet switching, then speeds transmissions by eliminating error check-

ing and correction overhead.

Many T1 multiplexer vendors, including Cal State bid runner-up Newbridge Networks, Inc., have announced intentions to ship frame-relay interfaces.

"The payback with the new network is that the next time we have a Network Task Force meeting, I won't get beaten up as much," said Chris Taylor, manager of the university's statewide CSNet. Taylor explained that Cal State saw a kind of explosion of network traffic between 1989 and 1990 after it installed a multi-protocol router network on top of its private 56K bit/sec. Telematics International, Inc. X.25 packet-switching network. The router network links LANs to one another and to the national Internet network.

In addition, Taylor said, budget restraints now preclude scattering expensive computing resources at multiple sites. The high-quality frame-relay network, he said, allows one expensive re-



Source: Information Research Institute, Inc.

source to be installed centrally and gives "local" response time to remote users.

"Having is shrinking like crazy," Taylor said. "Finding, say, databases on an IBM 3090 in one location that various sites access saves us bundles in mass storage and licensing fees."

Another Stratacom procurement last month by Chicago-based Evangelical Health Services reflected the same trend. Laboratory personnel in four hospitals and one headquarters office will access one DEC VAX for test results and other applications instead of several systems distributed at each site.

"It was more economical to buy a single software license for one hospital," said Evangelical's Leonard Nielson, a network engineer. "Now that we have an efficient wide-area network, we save multiple site license costs."

Despite Stratacom's unique status as the only maker of frame-relay-capable multiplexers today, Cal State's choice was not a given, Taylor said, because government mandates required that he issue requests for proposals to multiple vendors and go with the lowest bid.

"Frame relay was one of our most desirable 'extra credit' items," he said, "but for political reasons, we weren't allowed to make it mandatory." He added that DEC and Stratacom worked very hard to provide the best pricing and allow him the frame-relay capability.

High tech moves government beyond the Capital Beltway

BY GARY H. ANTHES
CW STAFF

WASHINGTON, D.C. — Modern computers and communications systems are contributing to the decentralization of the federal government. Technology is allowing, and in some cases encouraging, agencies to locate facilities far beyond the Capital Beltway.

The Washington Post has called Sen. Robert C. Byrd (D-W.V.), the first "Piper" of West Virginia, a "one-man WPA" for his successful but controversial efforts to persuade one federal agency after another to forsake the environs of Constitution Ave. for the Mountain State. Pork barrel politics may be at the heart of the moves, but technology is a consequence.

"New sophisticated communications networks have been put in place in our state, eliminating old terrain barriers and

creating 'super highways' in the sky," Byrd said in a recent speech. "This new capability permits the locating in West Virginia of high-tech computer... jobs and programs once reserved only for metropolitan areas."

Perhaps the plumpest pluck by the first Piper so far is the Federal Bureau of Investigation's Identification Division, which will move from the J. Edgar Hoover Building in Washington, D.C., to Charleston, W. Va., taking with it 2,600 jobs. The new facility will house a new computer system for scanning, storing, retrieving and matching fingerprints.

FBI headquarters now receives some 35,000 fingerprint cards and 35,000 pieces of fingerprint-related correspondence by U.S. mail daily. With the new system, fingerprints scanned at law-enforcement offices across the U.S. will

come into Charleston over the National Crime Investigation Center Network. Electronic mug shots and the results of fingerprint matches will be available over the network to remote law-enforcement officers and to FBI officials in Washington.

A spokesman for the FBI said a benefit of the move will be a more stable work force. The existing facility serves a 50% turnover every four years and is understaffed by 200 people now because of retiring difficulties. The FBI had 6,700 applicants for 250 positions at a pilot facility in West Virginia, he said.

A spokesman for the Bureau of Public Debt said two-thirds of the work force at its Parkersburg, W. Va., data center, which has been there since 1959, has more than 15 years of service with the bureau. Aided by that statistic, Byrd persuaded the bureau earlier this year to move 700 users to West Virginia, leaving less than 10% of its work force in Washington.

"The FBI move wouldn't have been possible without modern computer and communications technology," said Fred

Wood, senior associate at the U.S. Congress Office of Technology Assessment.

Wood said the pressures of traffic, air pollution and the like will accelerate the flight of government agencies to less populated areas just as technology makes that feasible. "It's time for a fundamental look at the organization and operation of the federal government in an electronic age. We've spent hundreds of billions of dollars on computers and communications over the past decade, but overwhelmingly, the government is unchanged."

For Joseph Costes, president of J. F. Costes, Inc., a Washington, D.C.-based consulting firm specializing in the future, that time may have come. "It's not unthinkable to have agency headquarters here with the functioning arms all around the country. It would be a virtual reality of centralization with a physical reality of dispersion" made possible by fiber-optic and satellite communications, he said.

According to Costes, the public would benefit as much as the federal employees as the enormous capacity of fiber optics gives people access to unprecedented amounts of information.

Mr. Chips leaving town?

The image of the government physically centered in Washington is a preeminent concept," said Alan F. Wicatan, professor of public law and government at Columbia University.

He said the government is moving away from a 1950s model of centralization in which big mainframes with big databases were surrounded by many users. "Now we have an array of options to design government with any degree of decision-making power at any level. Technology allows us to pursue a blend of central, regional and local government." He added that "in the next 10 to 20 years, the greatest revolution may be the access by the public to gov-

ernment information, no matter where the information is located."

In a recent report from the Office of Technology Assessment (OTA), the congressional think tank recommended the establishment of rural-area networks (RAN). Whereas business networks are typically structured along functional lines, RANs would be organized around the geography and needs of a community and configured like campus-area networks.

The RANs would link government offices, schools, businesses, hospitals and homes and would tie into a nationwide backbone, the OTA said. They might be built around digital radio and satellite technology, whose costs are relatively insensitive to distance.

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NEW PRODUCTS

Network management

Silicon Graphics, Inc. has enhanced its Netview network monitoring and diagnostic software.

Version 1.1 supports additional network protocols, including Digital Equipment Corp.'s Local Area Transport, Apple Computer, Inc.'s Appletalk and Simple Network Management Protocol. It also provides accounting reports for individual network nodes and new automatic alarms.

Netview 1.1 runs on the company's Iris four-dimensional workstations. A centralized version license costs \$8,000.

A remote version costs \$1,200 for the initial license and \$1,000 for additional licenses. Upgrades from Version 1.0 are free of charge.

Silicon Graphics
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Progressive Computing, Inc. has introduced a \$995 protocol analyzer.

The Serialtest Sync software package runs on personal computers and analyzes synchronous data communications including Synchronous Data Link control, High-Level Data Link Control and X.25 protocols.

The program offers context-sensitive help and is menu-driven.

A Bit-Error Rate Test option costs \$395.

Progressive Computing
Suite 101
814 Commerce Drive
Oak Brook, Ill. 60521
(708) 574-3399

Sophco, Inc. has unveiled a product for remote management and diagnosis of personal computers.

Offsite is made up of a Commander module and a Receiver module and offers capabilities such as file transmission and retrieval; configuration and memory mapping for remote systems; and remote key-board, screen and printer sharing.

It includes a database of information on client systems.

The Central Commander module is priced at \$295. Receiver modules cost \$95 each.

Sophco
Building B
4730 Walnut
Boulder, Colo. 80306
(303) 444-1542

Micro-to-host

Digital Communications Associates, Inc. recently announced Crosstalk for Windows Version 1.2.

The enhanced version offers additional network support and VT220 and VT380 terminal emulation. It also includes Ymodem-G support, allowing faster data transfer for users with error-correcting modems.

The installation procedure has been streamlined as well.

The product costs \$195 or \$49 for an upgrade from previous versions.
Digital Communications Associates
1000 Alderman Drive
Alpharetta, Ga. 30202
(404) 442-0995

The Wollongong Group, Inc. has extended the capabilities of WIN/TCP for VMS, a software package providing connectivity between Transmission Control Protocol/Internet Protocol networked users and Digital Equipment Corp.'s VAX and Microvax systems.

Release 5.2 of the software includes a high-speed Message Transfer Agent for VMS mail systems and several other features previously offered as options.

Pricing ranges from \$1,000 to \$40,000, depending on platform.
The Wollongong Group
1129 San Antonio Road
Palo Alto, Calif. 94303
(415) 962-7100

Ideasoft has introduced a software product, Ideacomm 5251 for Windows, that provides terminal emulation and file transfer facilities for personal computers running Microsoft Corp.'s Windows 3.0.

The product supports communication with IBM Application System/400 and System/36 and System/38 midrange computers.

It requires the Ideacomm 5251 communications add-in card, which works with the company's 5251 software for DOS and OS/2 systems as well.

The product with the adapter card costs \$395.

Ideasoft
29 Dunham Road
Billerica, Mass. 01821
(508) 663-6878

Links

Digital Data Systems, Inc. has introduced the Epic Laserfax, a product that receives fax transmissions and prints them on any Hewlett-Packard Co. compatible printer.

Epic Laserfax prints documents in real time at normal fax speed. It can also share voice phone lines and requires no software.

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MANAGER'S JOURNAL

EXECUTIVE TRACK



James R. Chambers has been named vice president of information services at the Nabisco Biscuit Co., an East Hanover, N.J.-based, \$2.7 billion operating company of Nabisco Brands, Inc.

Chambers, 33, had been a category business director at Nabisco Biscuit since 1989. He joined the company in 1981 as a cost/economic analyst and became a senior director of sales operations in 1986.

Chambers holds a bachelor's degree in civil engineering from Princeton University and an MBA from the Wharton School of Business at the University of Pennsylvania.



B. Michael Gerringer was named head of the combined operations and information services unit at Mercantile Bancorporation, Inc., a \$7.4 billion bank in St. Louis.

Gerringer, 36, was most recently a vice president at Security Pacific Automation Corp. in Los Angeles. He joined Security Pacific in 1984. Before joining Security Pacific, Gerringer worked for six years in information systems-related positions at Hughes Aircraft Co. and Rockwell International, Inc.

Gerringer reports to Mercantile Chairman and Chief Executive Officer Thomas H. Jacobson. John H. Lee, senior vice president of information services, remains with the company and reports to Gerringer.

Darryl Shogor, managing director of systems integration at Federal Express Corp. in Memphis, has been temporarily assigned to the new position of managing director of information and telecommunications tactical teams in Europe and Africa.

Shogor is based in Brussels until the summer of 1992. He is responsible for automating and integrating *deutsche* Federal Express systems on the two continents, primarily in Brussels, Paris, Milan and Nuremberg, Germany.

BY JOANIE M. WEXLER
OF STAFF

Despite being big, blue and centralized, International Paper Co.'s recent acquisition bings and subsequent data center consolidations have created what director of information services and Vice President Karl Moore describes as "the biggest managerial challenge I've seen in 31 years."

The \$12 billion Memphis-based firm is largely snubbing the downsizing trend with a centralized internal staff and an IBM bent as it continually copes with blending corporate cultures and parochial computing conventions into a 400-person department.

For example, it reinforced its mainframe vows in May when it powered up a new Enterprise System/9000 Model 720, replacing two 3081a and one 3084 and bringing the firm from 114 million instructions per second (MIPS) of computing power to 175 MIPS.

The reason was the need to consolidate data from the 25 companies the firm has scooped up since it acquired paper manufacturing giant Hammermill Paper Co. in 1986, as well as to satisfy an increasingly computer-literate work force, Moore says.

"I hate to say our future will be IBM, though that has been our direc-

tion, and I don't see it changing. We're sticking with mainframes," says Jerry Williams, telecommunications manager at International Paper. He adds, "I don't know that any of our locations have made a direct effort to downsize

them with no existing plans to upgrade.

"Saying centralized is very unusual, although it is common to standardize on whatever platform is the most abundant in an acquisition," says Norman Weiner, a senior consultant in the information and telecommunications practice at Cambridge, Mass.-based consultancy Arthur D. Little, Inc.

In 1986, Hammermill ran data centers in Pennsylvania and Wisconsin, and International Paper operated data centers in New Jersey and Alabama. Two years ago, the physical merging of all four into the Memphis headquarters took place, although until recently, they continued to run under one roof.

This year, efforts kicked in to merge the disparate operating systems, databases, naming conventions, tape drives and security systems. The moves have paid off to the tune of a near-\$6 million annual budget reduction, Moore says, because of the elimination of duplicate resources.

"We spent 1990 just learning what we had," says Jerry Upchurch, computer center manager. "Where we could upgrade to common equipment and operating system variants, we did so. But we had to change every data set name and job name to comply with International Paper standards."

To that end, the firm established a

International Paper's Moore says data center consolidation has cut the firm's IS operating budget

onto [local-area networks], though many LANs exist."

Williams says the company primarily runs the 6-year-old IBM Personal Computer network LAN operating sys-

Memo billing the right ticket at Amtrak

BY MITCH BETTS
OF STAFF

User departments rarely have the frequent notice of how much it costs to provide the mainframe computer services they request from the information systems department. The result is that user demands for large amounts of storage space, faster response time or "nice-to-have" software enhancements may not be cost-justified.

That situation has led the Washington, D.C.-based National Railroad Passenger Corp., better known as Amtrak, to implement a strategy called "memo billing" to help educate managers and set priorities for IS projects.

With memo billing, the user departments do not actually pay the bill, as they would in a full-fledged chargeback operation. Amtrak seriously considered implementing a chargeback sys-

tem several years ago but ditched the plan when it found that chargeback would mean adding a full-time staff to maintain it, according to Bradford M. Burch, manager of service management in the IS department.

However, the memo billing system rolled out this year is so fully automated that it takes only 30 minutes to produce the quarterly reports, Burch said.



At a recent chapter meeting of the Association for Systems Management, in essence, memo billing produces most of the benefits of chargeback but at a much lower cost, he explained.

In addition to teaching department managers that computer resources are

not free, memo billing reaches the company's top executives, who can incorporate the data into the company's regular quarterly business reports. "It's the beginning of an executive information system," Burch said.

He added that memo billing has been a "huge eye-opener" for the IS department, which gets a clearer picture of mainframe users and can use the figures to help set priorities on what new IS projects to undertake. For example, the system can project how much money would be saved by streamlining an old, computer-hogging application or how much a new application will cost downstream, Burch said.

The system takes statistics on the mainframe resources used by various applications and feeds them into a spreadsheet and graphics presentation packages.

The critical variable, however, is determining how to apportion those costs to the functional departments.

Paper

CONTINUED FROM PAGE 59

computer center standards committee to gradually move the firm to a shared data environment. In addition, John Beckham, manager of special systems and consulting and a former independent consultant, was hired as an objective third party. His job is to create and oversee the company's plans for choosing common platforms, systems and software across the diverse businesses that International Paper has acquired.

The acquisitions include companies in the paper distribution, imaging products and Macosette businesses. While over 60% of those businesses were also IBM-based,

Moore says, diverse platforms from Data General Corp., Digital Equipment Corp. and Wang Laboratories, Inc. also existed.

Until now, the diversified businesses have been running autonomously, and International Paper wants to integrate them into the entire IBM computing infrastructure for operational savings and more comprehensive management.

Since International Paper's roots are as a paper manufacturing company, however, "our mentality was along those lines," Moore says. Without Beckham's fresh perspective, Moore says, the company might have installed "cost systems that we run in our mills that might not have those other businesses." Most International Paper sites report financial data daily to the Memphis data center,

where each location's receipts are consolidated on one balance sheet every fourth workday following the end of the month. Plans to standardize on a server platform for communicating with the centralized boxes — probably the Application System/400 — should facilitate that, Moore says, because "we won't need varying forms of connectivity and have to maintain different platforms."

On the personnel front, Moore's decision to hire outside firm Atlanta Consulting Group to conduct its workshop on Planning for Inspired Performance when consolidating the Hammermill operation was "the most productive thing we've done since I've worked here."

"We emerged from the program as a cohesive group," Moore says, with time

frames set for having a specific set of IS skills in place in the department and a January 1993 deadline that IS consistently provide quality products and services that meet or exceed customer expectations.

Over half of Hammermill's IS staff stayed behind when its data centers were shipped to Memphis in 1989. The new entity hired 160 people, though it reduced overall head count, in part, by promoting technical people to managerial roles. The job transitions were eased by the Quality International Paper Program, initiated by the company's chairman in 1984. The program, run by dedicated full-time staff, provides ongoing training and pushes the concept of quality in management, technology, leadership and team-building across departments.

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Blue horizon

Information services executives at International Paper say they are not overly concerned at this point with open systems because they've chosen IBM as their own internal standard. They tend to convert platform and operating systems to those already most abundant.

"It's terribly easy to focus on what's already there," says John Beckham, manager of specialty systems and consulting. "The horizon looks very blue both inside and outside at International Paper."

International Paper, however, is not unique in its lack of emphasis on open systems. A survey of nearly 400 U.S. information systems executives by Cambridge, Mass.-based research firm CSC Index, Inc. last fall revealed that 47% do not plan to move to nonproprietary platforms over the next two to three years.

Another reason for International Paper's consistent IBM flavor and centralized strategy: It works. A comparative analysis of the firm's data center efficiency conducted by Real Decisions Corp. in Dorchester, Mass., revealed that the shop is operating very lean and mean relative to the other 150 large companies Real Decisions has in its database.

"We currently have about 85 people in the data center vs. an average of 120 employees for a shop our size," says Karl Moore, vice president and director of information services.

Real Decisions Executive Vice President Len Bergstrom points out, however, that his firm's benchmarks have traditionally evaluated centralized shops only. The International Paper study would have compared the efficiency of its data center to other centralized data centers only, not to companies distributing their resources.

"Many companies remain centralized," Bergstrom says. "However, the return on adding computing power or consolidating data centers does tend to level off at about 200 [million instructions per second]."

JOANNE M. WEXLER

MANAGEMENT SHORTS

CSC Index takes leap with Quantum

CSC Index, Inc. has announced the first two offerings of its new Center for Re-engineering Leadership. Quantum is a research and advisory service limited to 40 member organizations and designed to help senior executives understand and practice business re-engineering. The service will offer focused research, interactive meetings and reports.

The center will also offer a three-day course entitled Re-engineering: The Executive Perspective. The course, limited to 30 executives per session, will be offered in September, October, November and December.

The course is intended to offer senior business executives a substantive view of the methods and results of process redesign and change management.

The center is a joint venture of CSC Index and consultant Michael Hammer. CSC Index is located in Cambridge, Mass.

Temporary-personnel company Uniforce Temporary Services in New Hyde Park, N.Y., has formed a new MIS division. The division will provide temporary programmers, systems analysts, local-area network specialists and technical writers to business, industry and government offices nationwide. MIS assignments are typically long term, lasting up to one year or more. Uniforce operates 97 offices across the U.S.

Edgar S. Woolard Jr., chairman and chief executive officer of Du Pont Co. in Wilmington, Del., has received the 1991 Outstanding Achievement in Management Award from the Institute of Industrial Engineers. The award recognizes executives who have significantly contributed to the industrial engineering profession.

Texas Instruments, Inc.'s plant in Johnson City, Tenn., won the 1991 award for Excellence in Productivity Improvement. The award honors achievements that have increased productivity, eliminated human drudgery and improved the quality of working life.

Other 1991 awards included the following:

- The Frank & Lillian Gilbreth Industrial Engineering Award went to A. Alan B. Pritsker, president of Pritsker Corp. in West Lafayette, Ind.

- The Honorary Member Award was received by Roy H. Elexon, president and chief executive officer of Allied Signal Aerospace Co. in Torrance, Calif.

The Society for Imaging Science and Technology has

issued a call for papers for its 45th annual conference, Imaging '92, to be held May 10-15, 1992, at the Meadowslands Sheraton Hotel in East Rutherford, N.J.

The central theme of the conference is emerging technol-

ogies for the year 2000. Abstracts of 100 to 200 words should be sent to publication chairman Richard Goodman, Polychrome Corp., Box 817, Yonkers, N.Y. 10702.

The fax number is (914) 965-5783. The deadline for re-

ceipt of applications is Oct. 9.

A VDT ergonomics panel will be included in the 35th annual meeting of the Human Factors Society to be held Sept. 2-6 in San Francisco.

The panel will focus on the design guidelines of the San Francisco VDT worker safety ordinance, which is the first of its kind in the U.S. The controver-

sial ordinance, which went into effect last January, specifies VDT safety guidelines for all public and private San Francisco-based businesses and is considered a possible model for other jurisdictions across the U.S.

The conference is sponsored by the Human Factors Society annual meeting office, P.O. Box 16502, Irvine, Calif. 92713.

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PC Magazine: 12/11/90 (Data Publishing) "9600 BPS MODEMS: Seeking the Speed Barrier" PC/LAN Links 10/91: seven rapid rise modems competing with V.32, V.42 and V.42bis standards.

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TAKE ADVANTAGE OF CHANGE™

COMMENTARY

Susan Cramm and
Thornton A. May

IS manager: Heal thyself

At a recent conference, retired Bergen Brunswig Chief Information Officer Tony Vallario counseled 50 CIOs that the greatest challenge facing technology managers today is their inability to admit their own mental obsolescence. We would go so far as to say that the vast majority of IS management troubles are psychosomatic. Data processing has become a profession of winners and self-appointed victims.

How many times have you heard IS professionals complain that their users don't understand them, that they have 20 years of backlog, that they are not involved early enough in key decisions, and they have limited stature because they report through finance or administration?

We need to develop a new paradigm regarding who we are and what we do—and that requires abandoning old behaviors.

Truly progressive IS organizations do not focus on the applications backlog. What purpose does a backlog serve? Few business executives are moved to expand funding levels on the basis of a backlog list. We live in a culture that funds success, not failures. The backlog in many mainstream organizations is a sham, a shallow pretense to give managers a chance to input and then frustrate them by effectively ignoring the request.

WE NEED TO
develop a new
paradigm regarding
who we are and what we do.

The biggest challenge standing in the way of realizing the full impact of information technology investments revolves around infrastructure funding. To date, the IS organization has failed to be able to articulate the specific value that the infrastructure provides.

Three broad functions must be attended to for successful management of IS assets: knowing one's business, monitoring available technology and implementing appropriate technologies.

In progressive organizations, there are no users, only clients. IS should help business managers "live in the future for a day"—jump outside the barriers of the status quo and envision what could be. The IS organization can establish itself as a test bed for rethinking the business.

We believe a central function of management in the progressive IS organization is to redefine frontiers—which frequently results in the added benefits of creating demand for new technology.

Many in the profession today bemoan the fact that they are not asked to participate in the process of setting strategic direction or planning business changes.

That's ridiculous—try to imagine a world class outside service provider that waits for the client to call. The client has a business to run. The role that the IS organization plays in supporting that business can range from the strategic (direction setting) to the mechanical (order taking). Where the organization sits on that spectrum is a function of its credibility and capability.

Simply reporting to the chief executive officer is not going to change the environment. The CEO or president will elevate the function to the executive committee level only if it is clear that technology not only enables strategy execution but can actually shape the formulation of strategies.

Building IS organizational stature is

based on viewing IS not as another staff function but as an internal vendor of professional services. Recognize that your products are not only systems, but people and expertise. IS champions have succeeded in courting executive attention when they demonstrate value along the following problem areas:

- Executives operating off of inappropriate media.
- Executives lacking the operational information they need to manage.
- Deteriorating customer service.
- Unleveraged employees.

This process starts with a change in you. Mentally fire yourself from your old job and hire yourself as the leader of your company's new internal "IS consulting practice." Take some sales courses and

buy some new suits. Formulate a strategic IS plan.

Your job is to create windows of opportunity for your organization to demonstrate the impact of IS on the business. Delivering quickly in high-impact areas will create an understanding of the potential of technology. This will (slowly) move your organization to the "in crowd" and motivate clients to get you involved up front. Your organization will have influence, funding will become easier, and your organization will be energized by the positive client feedback and newfound stature.

Cramm is divisional IS manager at Taco Bell Corp. in Irvine, Calif. May is director of imaging research at Nolan, Norton & Co. in Lexington, Mass.

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BOOK REVIEWS

IS insight without technical jargon

How to Succeed in the Information Systems Profession: 10 Personal Success Factors
By Merriam W. Hewitt
Whitney House Publishing, Inc., \$19.95

How-to books about becoming an information systems professional are as numerous as the veterans who want to share their experiences. However, Merriam Hewitt's effort stands out from the pack for its clarity and readability.

Based on his 35 years of experience in IS positions ranging from manager to consultant, Hewitt's 263-page book offers insights that allow the reader to peek behind the profession's curtain of technical and managerial jargon and get a feel for the real world of IS.

The presentation is loosely based on MIT Professor John Rockart's notion of Critical Success Factors, which identify key tasks an organization must do to be successful. Hewitt theorizes that IS professionals have similar "must do," which he calls Personal Success Factors. The 10 areas he identifies are divided into three strategic and seven

tactical roles.

Hewitt's structure works well as an underpinning for the lively mixture of commentary and fact that fills each chapter. For example, one of the Strategic Personal Success Factors is called "The Organization Man." In addition to explaining the various roles of IS professionals in different organizational models, Hewitt relies on his intuitive understanding of the business to explain the strengths and weaknesses of each model.

Unfortunately, the book's structure also requires Hewitt to expound on areas where he has less to say beyond the standard lines found in most books of

this type. For instance, the chapter on becoming a vice president of IS is a scant four pages with little more than statements that say in sum, "To be an IS vice president, act like one." The reader is left with the unanswered question of just how this is accomplished.

The book's other major flaws are the amount of text devoted to summarizing what is about to be said and a 45-page set of chapters on IS history. While Hewitt has some insightful comments to add about historic periods, the reader is left wondering when he will dig into his subject. The historical segment, might have been more useful as an appendix, rather than occupying the first half of the book.

MICHAEL L. SULLIVAN-TRAINOR

The Customer Driven Company:
Moving from Talk to Action
By Richard C. Whiteley
Addison-Wesley, \$21.95

A basic business axiom that is constantly drilled into the heads of information systems professionals remains fundamental: No matter how alluring the products your company markets, it still takes customers to make a business thrive. Whiteley's book does not let the readers forget it.

Because we are in an age when treatment of customers is often as important as the quality of the products and services they are buying, businesses need to realize that they need to entice customers with their wares, then delight and captivate them with their service.

Author Whiteley, co-founder of The Forum Corp., a consulting firm with more than 20 years of experience in customer focus research, does not just preach theories; he gives the reader precise plans of action to follow.

In almost textbook form, Whiteley takes the reader step-by-step through each overhaul that needs to be performed to focus every department on serving the final customer. Research documented in the book's final 80 pages backs up all of the author's conclusions.

Interestingly, the reader has a choice of how to read this book: One is to start at Page one, and then take the included self-test at the end. The second is to use the book as a tool and complete the self-test to help discover the weak spots within your firm and read only those chapters that will help in the improvement.

KEVIN BURDEN

Managing Microcomputer Technology as an Organizational Resource
Edited by Mehdi Khosrowpour
and Donald Amoroso
Idea Group Publishing, \$47.50

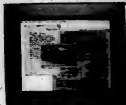
Most academic essay collections should stay on the library shelf, but *Managing Microcomputer Technology as an Organizational Resource* actually deserves a read. Written in a straightforward style that IS managers will find easy to read, the various essays make good points on a variety of topics, including strategic use of microcomputers, problems and solutions for managing microcomputers, remembering the end user and selecting software.

Despite being oddly dated — the research stops with 1989, and some essays refer to concluded events in the future tense — this book offers a solid and forward-looking compendium of research and real-world advice.

MICHAEL FITZGERALD

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CALENDAR

AUG 11-17

Manufacturing Networks Conference, Chicago, Aug. 12-13 — Contact: Digital Computing, Inc., Andover, Mass. (508) 479-3888.

Windows and OS/2, Boston, Aug. 14-16 — Contact: CM Systems, Encinitas, Calif. (619) 491-6800.

AUG 18-24

Share '77, Chicago, Aug. 18-23 — Contact: Share Headquarters, Chicago, IL (312) 644-6616.

MSB Training Week West '91, San Francisco, Aug. 19-23 — Contact: Perini Report, MS Training Institute, Fremont, Mass. (508) 479-7288.

AUG 25-31

The Santa Cruz Operation Forum '91, Santa Cruz, Calif., Aug. 18-23 — Contact: The Santa Cruz Operation, Santa Cruz, Calif. (408) 435-7332.

Paul Mirra, Washington, D.C., Aug. 20-31 — Contact: National Trade Publications, Inc., Alexandria, Va. (703) 640-6000.

Surface Mount International Conference and Exposition, San Jose, Calif., Aug. 25-29 — Contact: Miller Presson Exposition, Boston, Mass. (617) 239-9976.

International Security Conference, New York, Aug. 27-29 — Contact: Calvary Exposition Group, Des Plaines, IL (708) 239-8511.

Business and Export Systems Applications, Berlin, Germany, Aug. 28-30 — Contact: Ustritz Hargmann, Ustritz, Germany (011-49) 37-150-1545.

Advanced Communications Technology Satellite Program, San Jose, Calif., Aug. 29-30 — Contact: Mary B. Gable, Public Service Satellite Consortium, Arlington, Va. (703) 979-6001.

SEPT 1-7

Very Large Scale Systems, Barcelona, Spain, Sept. 2-4 — Contact: VLSI '91, Barcelona, Spain (011-34) 3-418-8867.

MS World, San Francisco, Sept. 4-6 — Contact: Miller Conference Management, Westport, Conn. (203) 239-9987.

Under Open Solutions '91, San Jose, Calif., Sept. 4-6 — Contact: Data Open Solutions '91, Mountain View, (415) 944-8800.

SEPT 8-14

Managing the Move to Workstation-Based Development — The Move of the '90s, San Diego, Sept. 9-11 — Contact: Development Center Institute, Inc., Indianapolis, Ind. (317) 944-2725.

Minister Recovery Symposium and Exposition, Atlanta, Sept. 9-11 — Contact: Disaster Recovery Journal, St. Louis, Mo. (314) 644-1001.

Symposium on the Computerization and Use of Materials Property Data, Cambridge, England, Sept. 9-11 — Contact: Thomas Corcoran, ASTM, Philadelphia, Pa. (215) 299-5544.

Digital Equipment Computer User Society (DECUS) Europe Symposium, The Hague, Sept. 9-13 — Contact: DECUS Europe, P.O. Box 1, Rotterdam (011-41) 22-709-4264.

State Storage, San Jose, Calif., Sept. 10-13 — Contact: Perini Management, Carlsbad and Associates, San Jose, Calif. (408) 594-6644.

Reengineering Begins, Los Angeles, Sept. 10-12 — Contact: Digital Consulting, Inc., Andover, Mass. (508) 479-3888.

Government Network Workshop Applications Workshop, Houston, Ala., Sept. 10-12 — Contact: Ross Kivren, U.S. Army Research Office, Research Triangle Park, N.C. (919) 549-8641.

Information Highways Uniting America for Interactive Communications, New York, Sept. 11-12 — Contact: Business Week Executive Program, New York, N.Y. (212) 613-8184.

ANCC: The Microcomputer Industry Association's Breakaway '91 Conference, Atlantic City, Sept. 11-12 — Contact: Deborah Kesting, ANCC, Ridgeland, Miss. (601) 877-9033.

Info MSB, The Information Management Exposition and Conference, New York, Sept. 11-13 — Contact: Leslie Livingston, Calvary Exposition Group, Stamford, Conn. (203) 353-6445.

SEPT 15-21

International Electronics Packaging Society (IEPS) Conference, San Diego, Sept. 15-16 — Contact: Wilbur Adams, IEPS, Wheaton, IL (708) 360-1044.

State Administration Management Association International Symposium, Seattle, Sept. 16-17 — Contact: BN Planning, Trimble International, Los Angeles, Calif. (213) 623-0113.

Effective Methods for Information Systems Quality Assurance, Orlando, Fla., Sept. 16-18 — Contact: Quality Assurance Institute, Orlando, Fla. (407) 363-4111.

Auto-Tools '91, Detroit, Sept. 17-19 — Contact: Automotive Industry Action Group, Southfield, Mich. (313) 360-3676.

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PRODUCT SPOTLIGHT

Executive Information Systems

LAN-based EISs are all the rage, but unless you plan carefully, they can fall under the weight of burgeoning databases and user populations

BY MARY BRANDLE

At Lockheed Aeronautical Systems Co. in Marietta, Ga., executives and middle managers love the fact that up-to-the-minute corporate data is delivered to their personal computers. They love the way it appears in a readily understood format. The only thing they don't love about their executive information system (EIS) is the five to 15 seconds it takes to call up a display.

For their part, the IS department isn't so thrilled with the expense of maintaining the in-house-built, host-based EIS. Not only does the system rely on technology so out-of-date that it borders on being unsustainable, but the department also requires people skilled in expert systems to keep it running.

Any time a user wants to change a screen format or report structure, it's just another entry on a long list of requests. Considering the fact that the system delivers from 70 to 100 screens per day pertaining to safety, quality, manufacturing and financial data, that's an entry the IS department doesn't need.

Lockheed is hoping to turn both of these tides when its new EIS is implemented — this time, on a local-area network with an off-the-shelf package, Comshare, Inc.'s Commander EIS.

Speed needed

"We required a LAN for speedy delivery," says Don Woodward Jr., information services technologist at Lockheed. "There's a significant increase between updating the executive PC from a file server as opposed to a host. On our current system, it could take 30 seconds to download one screen." Woodward says he also expects to greatly reduce his

maintenance and support costs.

Many IS managers are being lured by LAN-based EISs, according to a recent report from Pizzano & Co., a market research firm in Cambridge, Mass. According to the firm, 48% of 132 current EIS users said they were turning their attention to LANs; 17% are contemplating mainframe purchases or improvements.

In addition, all of the major EIS

vendors have sensed the appeal of smaller platform EISs. Pilot Executive Software and Comshare — the top contenders in the EIS marketplace (not to mention noted mainframe diehards) — now market LAN-based EISs, as do IBM, Epic Software, Inc., DMRS Co. and Information Resources, Inc.

Reasons for the attraction in-

clude promises of reduced maintenance, easier implementation and faster response time. However, economics is the biggest reason for the downsizing move.

Business Intelligence Ltd., a research and information company in London, recently compared the costs of two EIS implementations of similar project duration (12 to 14 months) and number of users (10 to 12 users). The LAN-based implementation

of Rockwell International Corp. in Cedar Rapids, Iowa, "We call our system 'EUS,' or 'end-user information system,'" says Dan Kiese, manager of EIS/microcomputer systems.

Using a PC-based product from a major vendor, Collins Air Transport wants its professional programmers to work on new development and its end users "to develop much of their own applications in a point-and-click approach," Kiese explains.

The choice of languages ranges from purely object-oriented, as in Pilot's Lightweight, to a combination of text and icons, as with Comshare's Commander.

Costs add up

Just because an EIS is LAN-based does not guarantee a cheap system, however. For one thing, once you add in hardware, personnel, training, consulting and ongoing costs, you're looking at an expenditure of about \$100,000 (see story page 70).

In addition, not all LAN-based packages are suitable for all organizations. You may start out spending very little, but as the system grows, the cost gap between host-based and LAN-based EISs may narrow.

The most important thing to realize when shopping for one of these packages is the wide range of functionality available in the software. Traditional mainframe packages offer total EIS functionality — including the graphical user interface, executive database and tools for developing applications and building screens — in one very expensive package, usually reaching the \$100,000 range.

There are also LAN-based packages that offer a full set of EIS functions, including those from Comshare, Epic Software, Information Resources and IBM. Because these packages provide links into the host database (some even require a mainframe version of the software), they too can be pricey, although ongoing costs may not be as high as the host-based packages.

Continued on page 68



The Basics

was less expensive than the host-based system by about 46%.

A big reason for the diminished maintenance and support costs on LAN products is that much of the responsibility for applications development is pushed down to the end users, with much less dependence on IS.

At Collins Air Transport Divi-

INSIDE

Price Factor

No matter which you choose, EISs are expensive. Page 70.

Buyers' Scorecard

Pilot Executive Software's product tops user ratings. Page 72.

Product Guide

A comprehensive listing of current EIS packages. Page 74.

Brandle is a Computerworld senior editor, product spotlight.

Continued from page 67

The newest and lowest cost trend, however, is for LAN-based vendors to unbundle much of the EIS functionality and offer just a PC-based EIS engine, which creates the graphs and performs functions such as exception reporting and drill-down. These products typically cost in the mid-hundreds of dollars, but it is up to users to purchase the graphical user interface, database and applications development and screen-building tools from third parties.

"The general thinking for a LAN-based EIS company is to provide some kind of graphical interface to databases and let secondary companies fill in the holes," says Thomas E. Doyle, vice president at The Lehmann Group, a consulting

How to determine EIS functionality

- Quality of user interface.
- Flexible, intuitive navigation of reports.
- Ad hoc reporting.
- Flexibility and quality of (integrated) graphics.
- Easy-to-use data analysis tools.
- Ability to access external data.
- Electronic mail with executive information systems users and corporate systems.

Source: Systems Intelligence—London

firm based in New York.

For instance, Pilot's Lightship, which sells for \$795, provides a Microsoft Corp. Windows-based graphical front end through which users can access data from other PC applications. The product does offer an object-oriented applications development language, but in order to build screens, you need to purchase Information Builders, Inc.'s Focus or Easel.

Although consultants generally discourage people from building EISs completely from scratch, they look favorably on the unbundled option.

"You need to ask, 'What do we really want to give the executive?'" Doyle says. "Rather than the whole suite of tools, you may find the scaled-down LAN products fit your needs. As micro players develop

stick interfaces to server databases and as applications companies develop applications to work across network environments, you'll find the sheer cost of developing applications, purchasing hardware, staffing and maintenance a lot less in LAN-based."

The cost benefits of these lower cost LAN products disappear, however, once you get into large user populations. Sure, you can add more file servers to the LAN to accommodate a larger store of data. But that will just increase the time it takes to update EIS data because each file server must be treated separately.

Sticking with a small user population is just fine for many companies. The trend today is for EIS use to trickle down from

Continued on page 71

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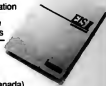
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*David W. DeLong, co-author of "Executive Support Systems: The Emergence of Top Management Computer Use," ©1991 Express/EIS is a registered trademark of Information Resources, Inc.

Keep in mind

BY M. J. RICHTER

After you've deliberated for weeks and maybe months over which EIS software to buy, here's something you probably don't want to hear: The software won't guarantee a successful implementation.

"Take two guys with exactly the same software package who spend exactly the same amount of money on exactly the same computer environment. One has a great success and one has a great failure," says Alan Paller, president of ARI Data Graphics, a market research division of Computer Associates International, Inc.

"We see almost no sign that the success of the project correlates with the choice of product," agrees Jan Mulkajon, director at London-based Business Intelligence Ltd. However, he adds, "that doesn't say that some products are better than others for certain requirements."

Paller says you should also consider the following questions:

- Do you know precisely what business payoff you will reap from investing in an EIS and how it will affect the bottom line, your client relationships and your growth?
- Do you have a driver as well as a sponsor? While the sponsor is an executive-level person who champions the project, the driver is responsible for the actual implementation of the system.
- Does the driver have senior management's confidence?
- Do you personally want to work 16 hours a day for the next six weeks to six months?

If an organization cannot answer all of the above questions in the affirmative, it should avoid an EIS altogether, Paller warns.

For those that have answered yes to all of the questions, he suggests finding another company that has a working EIS and similar hardware and software architectures.

"You want to find a model that others have already used," he says, "so that you not only get the software but a mentor to go with it."

Richter is a free-lance writer based in Arlington, Va.

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Expensive to implement, costly to develop and maintain

BY HUGH WATSON



No matter how you implement it, an executive information system (EIS) is always going to be expensive.

Not only do you need to account for hardware, software personnel and training for the initial implementation, but you also have to maintain and develop the system.

As the system inevitably grows, so do the ongoing costs for all of those categories.

Nevertheless, costs do vary, depending on a number of factors:

• **Hardware costs.** These are very dependent on the organization's existing architecture. If all the users — executives and managers — already have networked personal computers on their desks, there may be very little need to buy or upgrade hardware.

AS THE SYSTEM inevitably grows, so does the cost of hardware, software, personnel and training.

• **Software costs.** Your choice of whether you use a full-function, vendor-supplied package or partially or completely custom-built software has a dramatic effect on costs.

While most people custom built EISs before the mid-1980s, it turned out to be a very expensive undertaking that most firms avoid today.

It is less expensive to purchase tools such as screen designers and friendly interfaces and build an EIS in modular fashion. This is an attractive approach if there are pressures to keep costs down or if many of the pieces for an EIS are already in place. It is also optimal if executive support is weak.

Full-capability, vendor-supplied software provides all of the tools needed to develop an EIS. While these products resolve most of the technical problems associated with developing an EIS, they do result in software costs over \$100,000.

• **Personnel.** While the average number of employees on the EIS support staff is three or four, it may be larger, depending on the number of users supported and the amount of customization necessary.

The organizational structure for the support group influences how its costs are charged. Some groups are highly centralized and perform all EIS services; consequently, their costs are easily associated with the group.

A growing number of organizations have a small central staff with other personnel scattered throughout the organization who have a "dotted-line" relationship to the central group. These staff

members perform EIS services — such as identifying information requirements — on a part-time basis.

Because this staff's primary responsibilities are not EIS-related, their salaries are not usually carried on the books as EIS costs.

• **Training.** These costs should be low if an EIS requires a user to spend more than 15 minutes learning the basic capabilities, it is probably too difficult to use.



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and software on the network talks to one another (which is highly unlikely), the task of collecting what you need, monitoring it on a regular basis, and getting reports you can actually use, is a nightmare. Wouldn't it be nice if someone could prepare timely reports of just the things you needed to know, when you needed to know them?

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Watson is professor of MIS at the University of Georgia.

Continued from page 68

top of the organization into separate, decentralized business units that either don't have a mainframe or can't justify the high cost of host-based software.

But what happens if the system grows? "People start out and say, 'Yes, we can do a LAN-based EIS and fit it all on this one server,'" says David DeLong, an EIS researcher at Boston University. "What they don't realize is 20 years down the road, they're going to have 200 users on the system instead of 20."

It may not be apparent at the start, but growth is one thing all EISs have in common. "Maybe not initially, maybe not even in the first year, but eventually, if the EIS is going to be a success, it's going to have to tap into a very large percentage

of the corporate databases," says Bob Konrad, vice president at The Executive Insight Group in Bryn Mawr, Pa.

"EIS is fundamentally a systems integration project," says Ian McKeljohn, director at Business Intelligence. "You're considering data from a variety of different sources, and that number can be surprisingly large."

That doesn't disqualify LAN-based systems from supporting a large user base. McKeljohn cites Friso-Lay, Inc., whose LAN-based EIS delivers information to hundreds of managers.

However, anyone considering a large implementation needs to have some sophisticated IS capability, especially in a complex environment. "I wouldn't recommend the LAN-based EIS in a LAN-

over-LAN, big corporate environment," says Richard McGarry, president of McGarry & Associates, a Berlin, Conn.-based EIS consulting firm.

Ready to grow

One way to prepare for growth is to make sure the software supports any currently installed or planned LAN architectures and hardware platforms. Another way is to make sure the product supports many different protocols and has strong import/export facilities, including external editors and tools that parameterize information before it is sent to the server database.

"The quality of tools in this area is important," McKeljohn says. "PC tools tend to be weaker than host-based, since

they sometimes assume the environment is going to support standards."

One example is Lightweight, which currently supports Windows and the Microsoft Dynamic Data Exchange protocol. Pilot says it will be shipping a version that supports mainframe connectivity within the next six months.

It is actually not uncommon to maintain access to the mainframe database with a LAN product that supports mainframe links. With these products, the LANs are used to present and deliver the final screens, but the storage is taken care of by the host," McKeljohn says.

This setup is intended not only to support a large database but also to speed response time. "You've got one download to the file server rather than 100 separate downloads to PCs," Lockheed's Woodward says.

When planned well, a LAN-based EIS can work to your advantage, even as it grows to support more databases and more applications. This is especially true when you're first trying to rally support for the system.

"Many EISs are not successful because of a lack of organizational responsiveness or a lack of sponsorship," McGarry says. "Rather than implementing a corporatewide, host-based system, the LAN is more controlled. You can be more successful implementing an EIS among 20 people than 200."

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HOST BASED EIS:

Strengths

- Excellent systems and data integrity.
- Instantaneous delivery of new data to the workstation.
- Large-scale storage and processing resources.
- Can support large user populations.
- Ease of integration with other corporate systems.
- Robust security.

Weaknesses

- Expensive hardware and software.
- May pose problems of reliability (down time).
- May pose inadequate response times.
- Indefinite (e.g., cannot use portables).
- Development may require significant IS involvement.

LAN BASED EIS:

Strengths

- Low-cost software.
- Easier to install for small user base.
- Faster response time.
- Integration with other PC tools.
- Reduced maintenance.
- Less dependence on IS for ongoing applications development.

Weaknesses

- More difficult to support large or geographically dispersed user populations.
- May need mainframe link if database grows or if more access to corporate information is required.
- More difficult to update EIS database frequently.
- Poor integration with decision support systems.
- Risk of data redundancy and inconsistency.

Source: Information Management — Lockheed CP Chart, Doreen B. John

BUYERS' SCORECARD

Command Center rates first in EIS face-off

COMPUTERWORLD



Executive information systems

Total scores reflect average user ratings for all measured areas, weighted by user-assigned importance. Response base for all products: 50

Product	Highest ratings	Lowest ratings
Pilot Executive Software's Command Center SCORE 54	Ease of screen design and maintenance	Useful on-line Help screens
	Effectively presenting graphics, tables and text simultaneously	Efficient access to external databases
	Support for rapid prototyping	Efficient data extraction from existing databases
	Varied application shells	Effective interfaces to other software
Comshare, Inc.'s Commander SCORE 52	Ease of customization	Ease and variety of output creation
	Effectively presenting graphics, tables and text simultaneously	Useful on-line Help screens
	Well-integrated decision support systems	Pricing of installation and maintenance
	Support for rapid prototyping	Varied application shells
	Integrating data from different sources	Ease and variety of output creation
	Efficient access to external databases	Ease of customization

BY MICHAEL L. SULLIVAN-TRADNER
CW STAFF

Despite the growth of the personal computer-based executive information systems (EIS) market, mainframe EISs are still prominent at most large companies where complex applications and numerous users make large-systems management essential.

For as long as there has been an EIS market, two major players have gone head to head, keeping smaller rivals at bay while matching each other feature for feature. Comshare, Inc.'s Commander and Pilot Executive Software's Command Center each own close to half of the host-based EIS market, with IBM's Executive Decisions and Information Resources, Inc.'s Express EIS trailing in the distance.

Fifty users of the top two products were surveyed separately for this Buyers' Scorecard, with each group rating only its own product. Total scores are based on the average of each category rating multiplied by an importance factor assigned to each category by all 100 users surveyed (see methodology next page). User ratings for Express EIS are tallied separately because only a small number of vendor-supplied users were available for polling (see next page). IBM is not rated.

A year ago, the two products finished in a dead heat, with Command Center edging out Commander by only two-tenths of a point in a *Computerworld* Buyers' Scorecard that featured user ratings of each product across 17 categories. This year, Command Center managed to widen the differential in user ratings to two full points.

Command Center's lead in ratings was bolstered by strong marks in five categories rated most important to both user groups, particularly ease of screen design and maintenance. The mark users gave Command Center on that characteristic — 8.3 — was the highest for any portion of the survey. Its automatic program generator gives it an edge in this category, which also received the highest rating last year.

Command Center received its lowest ratings for ease and variety of output creation, database access and interfaces to other software. The rating for this last category represents a significant change from last year, when the product received the top grade of the same question.

Commander's strong links to internal and external databases showed up in higher ratings for ability to integrate data from different sources, data extraction and query capability. Commander also achieved the highest rating for well-integrated decision support systems, which reflects the product's integration with Comshare's System W. This rating was Commander's second highest grade — 7.7 — and was well ahead of Command Center, which earned a 6.8.

The lowest ratings of the survey were given to Commander for on-line Help screens (5) and pricing of installation and maintenance (5.5). Other low ratings came in application shells and ease of customization categories.

Commander users said they would like Comshare to add better graphics options and interfaces to other products as well as more user-friendly options and stronger local-area network support. Users of Command Center want support for more types of databases, better graphics and better interfaces. *

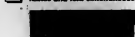
KEY RATINGS

Pilot's Command Center receives the highest ratings in five of nine categories that users rated most important, including the top three key ratings. Comshare's Commander is rated highest in security, ad hoc query and data extraction categories.

User importance rating:

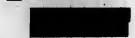
8.8

Effectively presenting graphics, tables and text simultaneously



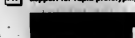
8.4

Ability to integrate data from different sources



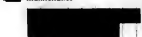
7.9

Support for rapid prototyping



8.7

Ease of screen design and maintenance



8.3

Ease of customization



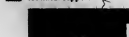
7.6

Multilevel ad hoc query capability



8.5

Quality of service and technical support



8.2

Efficient data extraction from existing databases



7.6

Good security for data, screens and systems



A CLOSER LOOK

Comshare's Commander is rated highest in four of eight closer-look ratings, but Pilot's Command Center receives top ratings in the other four, including pricing, interface support and application shells.

User importance rating:

7.3 Effective support for multiple user interfaces

7.4 Pricing of installation and maintenance

7.3 Efficient access to external databases

7.3 Effective interfaces to other software

7.2 Well-integrated decision support systems

6.9 Ease and variety of output creation

6.8 Varied application shells

6.0 Useful on-line Help screens

Verbatim

What is the major strength/weakness of this product?
(Responses are based on the most frequently stated answers.
Response base: 50 per product)

Likes

Ease of use
Maintenance
Development
Ability to integrate databases
Flexibility

Dislikes

Difficult to access multiple sources of data
Not user-friendly
Response time could be quicker

Loyalties

How likely would you be to purchase this product again if you were making the decision today?
(Responses based on most frequently stated responses)

Response base: 50

Likely
The reasons:
Ease of use
Maintenance
Design

Unlikely
The reasons:
Doesn't meet our particular needs

Number of respondents

45

Likes

Ease of use
Maintenance
Development
Excellent graphical capabilities
Ability to integrate multiple databases

Dislikes

Too maintenance-intensive
Not enough functionality
Difficult to access multiple sources of data

Response base: 50

Likely
The reasons:
It meets our needs

Unlikely
The reasons:
Graphics not developed enough

Number of respondents

45

Vital statistics

Total number of respondents: 100

What is your position?

Manager 52
Staff 21
Director 20
Other 7

How many executives use the EIS product?

1 19
2-10 19
11-20 31
21-40 18
41-60 8
61-80 8
81-100 7
More than 100 7

How long have you been using this product?

Less than 2 years 21
2-3 years 52
3-4 years 18
More than 4 years 9

How much did the system cost?

Less than \$11,000 0
\$11,000-\$50,000 5
\$50,001-\$100,000 9
\$100,001-\$300,000 32
\$300,001-\$500,000 25
\$500,001-\$700,000 3
\$700,001-\$800,000 1
\$800,001-\$1 million 2
More than \$1 million 4
Don't know 17

IRI's ratings

Although behind the major players in market share, Information Resources, Inc. is working hard to gain ground with Express EIS. With the acquisition of Execucom System Corp.'s Executive Edge by Comshare, there is more room for a third-place contender.

Fifteen users rated Express EIS highest in ad hoc query and decision support systems integration. The product received low marks on efficiency of access to external databases and usefulness of Help screens.

Modified ad hoc query capability

Well-integrated decision support

Support for rapid prototyping

Easy to create hard copy output

Quality of technical support

Ease of customization

Pricing

Effective support for multiple user interfaces

Efficient data extraction

Varied application shells

Effectively presenting graphics, tables, and text simultaneously

Ease of screen design

Ability to integrate data

Good security

Effective interfaces

Useful on-line Help screens

Efficient access to external databases

METHODOLOGY

To qualify for *Computerworld's* Buyers' Scorecard on executive information systems (EIS), a product had to be a market leader in terms of installed base among host-based systems. The base also had to include enough quantities of users to allow for a minimum of 50 respondents. Names of users surveyed for Comshare, Inc.'s Commander and Pilot Executive Software's Command Center were obtained from vendor sources.

The telephone survey was conducted and tabulated by First Market Research in Austin, Texas. Criteria were developed in consultation with experts who follow the technology.

Ratings are based on a 1-to-10 scale where 10

is very good and 1 is very poor. Total scores are calculated by taking the average of user ratings for each criterion and multiplying them by the average of ratings users assign to the importance of the criterion.

Of the 100 Commander and Command Center users surveyed, 71% reported that the products run in conjunction with more than five applications. Another 22% reported that up to five applications are used with the EIS systems, and 4% reported only one application up and running.

In terms of their responsibility for EIS, 86% of the respondents said they evaluate and recommend vendors, 80% set standards for the organization, and 78% select vendors.

Twenty-six percent of the respondents work

in manufacturing companies, 18% in insurance and financial services, 9% in government agencies and 7% in banking. Fifty-four percent of the companies have annual revenue of more than \$1 billion. Twenty-four percent have revenue between \$50 million and \$1 billion.

ACKNOWLEDGMENTS

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PRODUCT SPOTLIGHT

JULY 22, 1991

Project proficiency

Successful projects begin with project managers who complement their technical competence by mastering people skills

BY RALPH L. KLIEM

When you get beyond Gantt charts, network diagrams and documentation matrices, information systems project management is essentially about managing people.

Whether it's a two-person coding job or a multiyear strategic software initiative, getting employees behind a project is imperative. Without this support, projects can be costly and may even fail. IS heads may roll.

Project management success begins by knowing the techniques and skills needed to handle the human resources involved. Dealing with people working directly on the project requires selecting a project leader who can motivate, encourage teamwork and communicate well. (See story page 78 on the skills needed to be a successful project manager.)

Can't hire, can inspire

Motivating employees working on a project can prove difficult. Quite often, project managers have little or no authority to do the things that signal favor or disfavor with workers: promoting, demoting, hiring, firing and administering pay increases. This authority typically rests with functional or task managers who oversee the project. Without the ability to mete out punishments or rewards, project managers may discover that it is difficult to find employees who will dedi-

Kliem is an electronic data processing author on the corporate IS staff of a Fortune 500 firm and author of *The Secrets of Successful Project Management*, published by Wiley Press.

cate themselves to the project.

Project managers, therefore, must find alternative ways to motivate employees to work well for them.

One way is to involve employees in the decision-making process. This increases the vested interest a staff member has in the project, and it lets him know how important he is to it. Project managers should encourage participation to lower resistance and encourage commitment.

Project managers can foster commitment and ensure a motivated staff by letting employees know what is expected of them. Employees need to know up front whether the project will require 40% or 100% of their time as well as what kind of priority the organization has given their project. Then employees can manage their time accordingly. They can designate the appropriate amount of their energy toward the project and their primary duties without fear of running into a conflict with either the project manager or the functional manager.

Valuing employees will go a long way in motivating IS staff members to work hard. Each employee on the project has unique needs, perceptions, values and skills. Project managers must recognize and play on strengths and unique qualities, which will in turn encourage dedication to getting the project completed.

A good project manager is one who places as much emphasis on the "manager" part of his title as he does on the "project" part. He shouldn't get so caught up in the details — developing schedules, tracking costs and so on — that he forgets that managing people is also a high priority.

Project managers should be approachable. Employees must feel comfortable talking about problems when they arise. Knowing they have a sounding board not only keeps employees satisfied and motivated, but it also encourages them to discuss critical issues, issues they might not discuss with a project



manager who is perceived as cold or aloof.

Money is not necessarily always the most powerful motivator for doing a good job. Nothing motivates people more than knowing their manager will work hard to support them. Even if it's not in the project manager's power to give monetary or recognition awards personally, he can recommend monetary awards, publicly note achievements, submit recommendations for achievement awards or write letters of appreciation.

Go team!

Besides motivating people to do their best, encouraging teamwork is also crucial to completing a project. The project leader must bring together people with varied skills and talents to produce a product.

However, keeping a project on track can be a tricky proposition because of the

Continued on page 78

To be a better project manager...

Beyond outside courses and on-the-job training, there are other, less obvious ways to ensure that you'll be the kind of project manager who succeeds:

- Meet with successful project managers in your firm.
- Talk with project managers in other firms.
- Read histories (often called "Lessons Learned") of previous projects conducted in your firm.
- Re-evaluate your own experience after each project you manage.
- Read classic articles and books on management topics by authors such as Abraham Maslow and Peter Drucker.

- Motivation, teamwork, communication
- Good techies can be bad project managers
- Six 'soft' skills that are a must

Continued from page 77
varieties of group dynamics.

Because of the way most projects are organized, they go against the very nature of teamwork. Employees often find they have divided loyalties between the project manager and the functional manager. Theoretically, no employee should work for two managers; this violates the principle that there is unity in a single point of command. But under a matrix structure, that principle is violated.

In cases in which employees must choose between the two, the functional manager, typically wins. That's because he has the authority to hire, fire, determine schedule requirements, establish performance standards and purchase materials and equipment. In short, he has more power than a project manager has.

To counter this potentially divisive situation, project managers should coordinate with functional managers to define the employee commitments on their projects and the extent of command and control the project manager has. Project and functional managers should make their staff members aware of their decisions so no misunderstandings arise.

Another teamwork killer is tunnel vision. Because a diverse group of people supports a project, employees often lose sight of the project's objective: to build a

software system, install a network and so on. IS employees see the project from their own perspectives, which are too often purely technical. Because of their limited perspectives, they often lose sight of what they're working toward.

Because good project managers see the entire picture, they should remind employees that they share a common objective — to build a system that works for the business — and indicate how the activities of each employee contribute to reaching that team goal.

For example, project managers can offer staff members a view of the entire project by discussing the impact of critical activities on various aspects of the project at staff and status meetings. Reviewing network diagrams showing the ripple effects of a project delay can be effective.

Fostering teamwork also requires a project manager skilled in conflict resolution. Conflicts, which can quickly divide a team, will likely center around schedules, manpower utilization, priorities, costs, procedures, policies and personalities. If human and material resources are scarce, the potential for these conflicts is even greater. Project managers must be skilled in resolving these conflicts judiciously.

The important point for everyone to know is that human and technology resources must go first to those activities

deemed critical to completing the project.

The key to successful project management rests with clear and open communications. It does the project little good if project managers are unable to explain to employees what is expected of them and what their priorities are.

However, merely holding meetings, establishing policies, distributing project documentation and creating a project history file does not a good communicator make. A communications gap between project managers and employees can still exist. Project managers can bridge that gap by taking into account the individual needs of people on their teams as well as interests, goals, skills, attitudes and perceptions. By recognizing individual needs, project managers can assign people to tasks that draw on their strengths and encourage greater participation.

To be good communicators, therefore, project managers must have the ability to relate to other people.

Keeping staff up-to-date

Communicating well means keeping staff members apprised of changes that affect them. If project responsibilities change midcourse, project managers must inform each employee of the what, when, where and how of the changes. In this way, employees can quickly redirect their

energies to completing new or altered tasks, thereby achieving the goals of the project more productively.

Good communication is not confined to speech. Project managers must also know when to listen. Listening cues the project manager in to potential human resources, technical or financial problems and provides him with feedback about how he's doing on the job.

If project managers shelter themselves from feedback, they will be unable to detect or anticipate serious problems.

If a project involves a large number of people, project managers can easily become isolated from employees. That is dangerous for the project. Communicating via memos, reports, policies, procedures and other formal methods does not have the impact on employees that more personal means of communication have.

Project managers should always try to keep the lines of communication open. They can hold staff and status review meetings regularly as well as meet with employees individually. They can also solicit input and feedback from employees regarding important decisions.

The success of a project is inextricably linked to the success of the project manager. If project managers ignore the human aspects of project management, they soon won't have a project to manage. ■

Choosing the right manager for your special project

Six interrelated 'soft' skill characteristics are important to look for in a candidate to manage your company's project

BY RALPH L. KLIEM

Has this happened to you? You've made your software wizard the project manager of your latest software development project, but things are not going well. The project is late and running over budget. The project manager says he can get the project back on track, provided he receives more money, time or manpower.

Somewhere, upper management believes him. The problems, however, don't go away. Instead, they increase. Disputes arise that indicate the presence of poor morale. Employee turnover and absenteeism increase. Consequently, the project manager falls into serious disfavor with top management and has to start looking for a new job. You're not so sure your job is secure, either.

In situations like this, the problem may not be the project. More often than not, technological wizardrums can become managerial disappointments. Selecting the right person to be a project manager goes beyond looking for technical prowess. Often, a successful technician lacks the experience and training in "soft" skills, such as interpersonal relations and communication, that are crucial for a project manager.

What are the soft skills your next project manager should possess? They fall into six closely interrelated categories: communications, group management, interpersonal, interpretative, crisis management and gestalt.

Communications skills. Project managers should have strong written and oral communication skills. They must be able to write a memo, clear document, such as a memo or policy statement, to clarify or resolve complex issues.

A lack of communication skills may be the result of a technical education that placed little emphasis on writing or public speaking skills. Or perhaps the reason may simply be a lack of self-confidence.

Regardless of the cause, many project managers whose background is highly technical may be especially wary about communicating on nebulous issues that do not have black-and-white solutions. Without the persuasive communication skills key to making decisions when the outcome is not clear-cut, these project managers may be

at a loss. Many times, therefore, vital issues may be ignored. This leads to poor communication among employees up and down the chain of command.

When this information link deteriorates, it endangers the project.

Group management skills. Good project managers need to have a clear concept of teamwork. Poor ones see each staff member as an instrument of production, not as a human being who needs to feel a close association with the project and his peers.

Building group cohesion is especially imperative in an information systems environment because each staff member works as an independent specialist.

If communication among team members deteriorates, the group becomes nothing more than bodies working to develop a product. The upshot is duplication of effort and frustrated employees, which leads to low morale.

Interpersonal skills. Project managers must know how to relate to people and motivate them to action. Too often, project managers lack interpersonal skills, perhaps because they concentrate on the technical aspects and forget that people play an integral part in a project.

Nothing hurts a project more than the project manager's inability to relate to his people. Without that ability, projects can come to a standstill. Employees will think the project manager does not care about them as individuals and does not feel they play an integral part in the project's success. The project manager must have the capacity to get the employees to understand their roles. Without interpersonal skills, the project manager will find that task extremely difficult.

Interpretative skills. A project manager should be able to take data from a number of sources, convert it into information and determine its impact on the project. Many project managers fail to assimilate the wide variety of financial, schedule and personnel information that comes to them. Instead, they rely on one or two indicators and hope these will serve as a North Star to guide

them through a stormy project.

Other indicators are just as important. Personnel indicators (attitudes, bad attitude and so on) may point to a disaffected staff, which could signal that excessive turnover is imminent. That can damage a project just as much as poor technology or a bad financial picture.

Often, poor project managers will use only those indicators they can measure. In this way, a project manager who concentrates on technical problems often sees interpersonal and communication skills as insignificant simply because they are not directly quantifiable or easily definable. Consequently, such problems gradually accumulate until a major crisis arises.

Crisis management skills. Things do reach a boiling point sometimes, and it serves a project well to have a person in charge who can handle such crises. Many project managers fail because they do not have the ability to handle crises, especially nontechnical ones dealing with budget or personnel. Implementing Band-Aid solutions works only for a while. Soon, problems surface in other areas, including the technical. The poor project manager becomes preoccupied with one problem after another until he is inundated.

Gestalt skills. The project manager who will be successful is the one who takes a gestalt ("holistic") view of a project — from technical to financial to human resources and so on. One way to ensure project failure is to concentrate on only some areas. All areas are important, interrelated and required for a project to be completed on time and within budget and original specifications.

Many project managers lack a gestalt viewpoint because their experience and education have prepared them to become specialists. Once in managerial positions, many cling to their specialty, thinking it will make them successful once again. But having a superb programmer does not make a superb project manager.

All project managers should have the right hard skills: statistics, scheduling, estimating, budgeting and computing. But they should have the right soft skills, too. When selecting an IS manager, management should place equal emphasis on both. ■

COMPUTER INDUSTRY

NATIONAL BRIEFS

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► The legal action that shook the computer leasing industry early this year — IBM Credit Corp.'s lawsuit against third-party leasing player Comdisco, Inc., challenging the legality of subleasing and reconfiguration practices that many industry observers noted were by no means restricted to defendant Comdisco — might yet get its day in court but not in IBM's court of first resort. The Delaware Chancery Court early this month ruled that it lacks jurisdiction over the controversial case.

Big

► Only months ago, Clearpoint Research Corp. rushed to reach an out-of-court settlement with IBM on charges similar to those brought against Comdisco (see preceding brief). Clearpoint, by its own admission, handed IBM a virtual win because the \$70 million company sized itself up as too small to wrest anything but a Pyrrhic victory from Big Blue. Last week, the Hopkinton, Mass.-based IBM-compatible memory maker's strategy appeared to be "Don't get mad — get bigger." Clearpoint proposes to swap most of its assets for a controlling stake in Irvine, Calif.-based Distributed Logic Corp., which manufactures peripherals primarily for the Digital Equipment Corp. market.

Q2 earnings to prompt questions, not answers

BY NELL MARGOLIS
OF STAFF

Second quarter 1991 in the computer industry, where recession and restructuring continue to take their toll, was no joke — but we are likely to look back on it as a cartoon, according to analysts.

Not just any cartoon, but the one in the July 1 *New Yorker* in which a bespectacled businessman, poised at a podium with snowdrift earnings charts visibly mounted on the wall behind him, delivers to assembled stockholders what is fast becoming an emblematic '90s message:

"I want each of you on the way home to stop, look up, ponder the heavens and consider how insignificant our second-quarter loss really is."

Last week, attempting to draw some guidance from the second-quarter earnings results pouring forth from technology firms, analysts echoed the sentiment. For different reasons, many are arriving at the same conclusion: In a business climate in which emphasis is shifting to long-term strategizing on firms' parts and corresponding patience on the parts of those who scrutinize their actions and in

Company	Revenue April through June 1991	Percent change from 1990	Profit April through June 1991	Percent change from 1990
Cabletron Systems, Inc.	\$60.6M	71%	\$12.2M	73%
Cypress Semiconductor Corp.	\$75.1M	40%	\$10M	18%
NCR Corp.	\$1.6M	QND	\$28M	(14%)

CH Chart: Janet Gorman

which the pace of change is accelerating from rapid to frenetic, quarterly results may be better plumbed for meaningful questions to ask than for answers.

"What we've already been warned about by some companies, and what we'll see more of [as companies post their results].

Continued on page 82

Revenue loss flags end to Convex luck

BY ELLIS BOOKER
OF STAFF

RICHARDSON, Texas — Winning streaks in business, as in baseball, are thrilling to watch but doomed to end sometime.

For supercomputer maker Convex Computer Corp., the streak will end July 26. On that date, the firm expects to report flat or decreased revenue for the quarter ended June 30, as well as net income at the break-even to slight loss level. Although no catastrophe, this will mark the high-flying firm's first red ink in 26 consecutive periods.

Industry analysts said the downturn reflects a classic product migration dilemma: a new product line putting pressure on

the gross margins of an existing line.

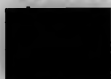
The new offering is the C3, a supercomputer family announced in May and Convex's boldest attempt yet to broaden its "mini-super" line into the high-performance territory now held by Minneapolis-based Cray Research, Inc.

"Being late on the C3 didn't help the situation," said Gary Smaby, president of Smaby Group, Inc., a supercomputer consultancy in Minneapolis. Convex is at least six months behind its publicly released schedule on the C3, he said.

Clearly alluding to the delays, Convex Chairman, President and Chief Executive Officer Robert J. Paluck said the full produc-

tion availability of these systems "is our highest priority and is the key to returning Convex to a satisfactory financial performance."

But Paluck said he expected



improvements in the fourth quarter with increasing sales of the midrange C3400 and high-end C3600.

The firm's only source of second-quarter revenue was the en-

try-wide C3300.

Confirming analyst comments regarding the pressures caused by the new line, Convex said that gross margins for the second quarter will fall below 50%. Still, Paluck cautioned that there remained some "risk" for these introduction schedules.

That caveat worries Smaby, who asked the fourth quarter is typically the biggest for supercomputer suppliers.

"If they aren't able to get the product out the door and ship it, then there is a chance for real trouble," Smaby said.

Founded in 1982, Convex has had profitable operations since the fourth quarter of 1985. Cash and investments at the time of the March 31, 1991 report were more than \$95 million. The company claims an installed base of more than 900 systems.

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IMS Technical Conference	October 6-11, Chicago, IL
Large and Storage Systems Technical Update	December 3-6, San Diego, CA
Large Systems Performance Conference	October 15-18, Gaithersburg, MD
OS/2 Technical Seminar	October 22-25, Rye Brook, NY
Management Conferences	September 9-13, Newport Beach, CA
Executive Management Conferences, Creating World-Class Capabilities	Date and Location
	August 14-18, Philadelphia, PA (Wharton School)
	November 6-8, Orlando, FL

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IBM

Hong Kong IS rides outsourcing wave

BY DON TERNANT
SAC NEWS SERVICE

HONG KONG — The explosion of outsourcing in the U.S. is beginning to capture the attention of a Hong Kong marketplace that so far has shied away from releasing tight control of internal information systems operations.

The idea of calling on outside sources for data processing assistance is nothing new to Hong Kong. Calvin Fung, director and general manager of computer services company Col Ltd., pointed out that his company has been providing bureau

services — specialized data processing functions — for other firms since 1972.

The company now has 50 to 60 bureau customers, he said, for whom a variety of services are provided on a time-sharing basis in Col's own data center.

Col runs retail banking applications for United Chinese Bank, Hong Kong Chinese Bank and Mitsubishi Bank Ltd. In addition, it develops investment management systems that it runs in the data center for a clientele that includes securities firms

Schroders Asia and Banque Indosuez. Some 70% of Col's business now comes from this type of bureau activity.

While outsourcing competition appears to be heating up, Fung said Col faced more extensive competition in the 1970s. During that period, he said, more bureau services companies set up shop to take advantage of what was then a general lack of computer expertise, a lack that in turn made it difficult for firms to manage their computer operations internally.



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The resurgence came in March 1989, when U.S.-based outsourcing giant Electronic Data Systems Corp. (EDS) came to Hong Kong specifically to take over the systems management operations of the International Bank of Asia (IBA).

According to Earl McKinnie, managing director of EDS Hong Kong, the deal with IBA is a 10-year pact. He declined to disclose the value of the contract. The local EDS office recently landed another deal with Cathay Pacific Airways, which calls for EDS to run Cathay's cargo handling system on a Stratix Computer, Inc. Series 1 machine in the EDS data center. Again, McKinnie declined to reveal the value of the deal, but he noted that EDS is actively pursuing other prospects in the local airline industry.

Aston Initiative

EDS first moved into Asia in January 1986, when it started an Asia-Pacific regional headquarters in Japan. The company now has around 300 employees in Asia, having set up offices in Australia and Singapore, and has established joint venture operations in Taiwan and Korea.

In addition to the IBA and Cathay accounts, EDS Hong Kong handles all credit-card processing for the Hong Kong branches of the Bank of Credit and Commerce.

Still, according to McKinnie, outsourcing has yet to really catch on in the territory. Outsourcing "is a new concept here" in contrast to systems integration, EDS' other forte, he said.

New concept or not, McKinnie acknowledged that there are other established players around that he has to contend with, including Col. "We have competed against them," McKinnie said, adding that he expects to "run into them more and more."

IBM, EDS' biggest competitor in the U.S., "claims to be doing something" in Hong Kong, McKinnie said, exactly what is unclear. A spokesperson for IBM China Hong Kong refused to say whether the firm has outsourcing customers here.

Resistance remains

While outsourcing is clearly on the upswing, there is still much resistance to the move, according to a recent survey by Calif.-based Input, Inc.

The survey of IS executives and managers at 55 Fortune 1,000 companies found that 75% of the companies have not even evaluated outsourcing as an option for IS functions. Input defines outsourcing as farming out all or part of a firm's IS operations for three years or more.

Even among respondents who have looked at outsourcing, "a lot of them were nudged into it by declining economic conditions," said J. P. Richard, principal consultant at Input's Vienna, Va., office. "We expected about 50-50; 75% is a big number," he said.

The reason for such resistance is that "they want to protect their own empires and rightly so," Richard said. "But within the next five years, I think, there will be a lot more pressure from financial executives to evaluate the option."

Joseph Lung, managing director of research firm Dataquest in Hong Kong, offered a similar assessment. Outsourcing is "not very common" in Hong Kong because "trade information is quite proprietary," he said. "People are reluctant to have a third party go through their files."

Ternant writes for Computerworld Hong Kong.



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Oversight agencies neglect role of user satisfaction

BY GARY H. ANTHES
CW Staff

ARLINGTON, Va. — The U.S. Congress and government oversight agencies ceaselessly scold large federal systems integration projects for budget overruns and schedule lapses. However, program managers, relying instead on the criterion of user satisfaction, are more likely to see them as successes, according to a survey recently released by the Federal Information Systems Integration Committee of Adapeo, the computer software and services industry association.

Committee members said the survey results bolster their long-standing contention that agencies such as the U.S. General Accounting Office — "It's never issued a favorable report yet," one said — ignore long-term user satisfaction and focus instead on cost and budget issues because they are easy to measure.

The survey results are based on interviews with government and vendor program managers of 11 completed systems integration projects, ranging from a \$42 million office automation project awarded by the U.S. Army to Boeing Computer Services to a \$443 million office automation job performed by Electronic Data Systems Corp. for the U.S. Department of Agriculture.

The survey was sparked in part by a report two years ago from the U.S. General Services Administration (GSA) that said complex federal systems integration projects are generally doomed to failure. In conclusion, the GSA called on agencies to break such projects into more manageable pieces.

"The report basically said there had never been a successful [information systems integration] project," said committee member Robert W. Steele, general manager of business development planning at Boeing Computer Services.

Program managers saw things differently. Six of the 11 government managers said their projects "have realized or will realize everything that was intended initially"; three said they actually got more benefits than had been anticipated. Even the downfalls were mild: Two managers said "expected capabilities have not been realized," and three said their projects had taken longer than expected.

The survey asked both government and contractor managers to say what factors defined a project's success. User satisfaction was cited most frequently, with six of 11 government managers mentioning it and eight of 11 vendor managers pointing to it. Budget and schedule criteria were cited by just two government managers each and by three vendor managers each.

A number of survey respondents said contractual red tape hampered efforts to change a project's scope to fit changing user needs. Walter C. O'Neill, special assistant for federal policy at IBM, said evaluation of project performance should focus on how well the agency managed change, not on whether there was a change in the budget.

"By doubling the budget, maybe you tripled the benefit," he said.

Survey respondents cited these key

factors as critical for success:

- High-level commitment and support within the agency.
- User involvement in the design and implementation process.
- Contractual flexibility to accommodate change.

These factors suggest some advice to his colleagues in the systems integration business, O'Neill said. "Where projects have failed in the past, maybe industry failed to foster these conditions."

Measures of success

User satisfaction	73%	54%
Requirements satisfied	54%	18%
Program on schedule	36%	18%
Program within budget	27%	18%
Upgrades can be accomplished	27%	18%
Contractor earns profit	18%	0%
Funding maintained by agency	18%	0%
Agency's mission supported	9%	9%

Percent of respondents who identified each category as critical. (Source: IDG)

Source: Adapeo

— CW Staff/Jessie Gonzalez

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Earnings

CONTINUED FROM PAGE 79

is that product transitions and troubled world economies were still the major factors," said John B. Jones, an analyst at Montgomery Securities.

Duff & Phelps Investment Research Co.'s systems firm analyst Martin Rosinger agreed. "Whatever this pull in the industry is, we're still waiting for it to lift," he said. "Now we're starting to be worried not so much about how companies did last quarter, but about what kind of structural damage we might see in some of them when the recession does roll back."

"We can all forget about the June quarter," said William Milton, who follows large semiconductor firms for Brown Brothers Harriman & Co. "For the most part, it was booked back in April — it's history."

Unlike the case in the systems and software arenas, where analysts are concerned that recession-battered bottom lines may not bounce back when the economy brightens, he said, semiconductor firm watchers are wary of second-quarter glad tidings that bring more joy than comfort.

"Take Intel," he said. "Second quarter was outstanding — there's no other way to say it. But that's not really the issue." What is? "The possibility that we're facing an inventory glut," Milton said. Intel Corp. racked up its second-quarter triumph during a period of short supply, he noted — but recent signs such as a sharp drop in gray-market semiconductor prices indicate that the shortage is over. What is more, since customers are reluctant to admit that they are stockpiling inventory, "it's hard to tell how much is in their hands until it's too late," Milton said. "And if there is a 386 glut, for instance, it will surely affect Advanced Micro Devices; their fate could hang on it."

Mixed bag

In the communications arena, too, the information value of second-quarter bottom lines is muddled if not moot, said John Rohal, an analyst at Alex. Brown & Sons, Inc. In fact, economic hard times cast a favorable light on communications companies, he said, because connecting the computers already in place appeals to customers as a cost-efficient alternative. Therefore, one of the questions to bear in mind when looking at second-quarter sales increases from communications firms, Rohal said, is to what extent they are buoyed by recession-induced customer conservatism — and how likely is the particularly hard-time advantage to survive when the economy rebounds?

For example, smart-hub vendor Cabletron Systems, Inc. "benefitted from the recession in that their aggressive pricing strategy played to receptive ears," Rohal said.

Providing solid products at a nice price is a premise that promises to play in good times as well as bad. However, he cautioned, the same is less certain when it comes to another factor that has helped Cabletron grow during the recession: the firm's direct sales force.

"In hard times," Rohal explained, "a direct sales force can be an advantage. The company has a lot more tight control over its own sales force and can move more flexibly and quickly to respond to customer needs."

EXECUTIVE CORNER

Andersen names managing partner

Carla J. Poonnessa has been named managing partner of Andersen Consulting's change management services division. Before joining Chicago-based Andersen in 1979, Poonnessa directed training and development projects at government agencies including the Internal Revenue Service and the Federal Aviation Administration. She succeeds Richard D. Johnson, who is retiring.

Early this month, Sun Microsystems, Inc., continued the realignment of its management team that began this past spring to better target the firm's efforts

at discrete customer groups. Former Sun Chief Financial Officer William J. Raduchel becomes vice president of corporate planning and development and chief information officer. Succeeding Raduchel at the CFO's post is Kevin C. Melia, formerly vice president of operations. In addition, former vice president of human resources Richard W. McQuillen steps up to the newly created position of vice president responsible for manufacturing, procurement and product delivery.

AT&T announced early this month that

Ian Ross, president of AT&T Bell Laboratories since 1979, will leave that post to take on responsibility for helping the telecommunications giant leverage its technical strength globally. Succeeding Ross at Bell Labs is John S. Mayo, former senior vice president for network systems and services.

Database software player Oracle Corp. recently named Craig A. Conway senior vice president of marketing. The 36-year-old executive has been an Oracle vice president since 1985, serving the firm in a variety of sales and marketing positions. In his new role, which includes membership on Oracle's Management Committee, he will manage corporate marketing activities worldwide.

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Daimler-Benz eyeing Sogeti

Sees 34% stake as launchpad to computer services market

PARIS — German automobile and aerospace manufacturer Daimler-Benz AG is looking to launch itself into the computer services market with the purchase of a 34% stake in Sogeti, the French holding company that controls France-based services players Cap Gemini Sogeti (CGS) and Gemini Consulting Group.

Prices for the deal currently under negotiation were not disclosed. However, based on the April 1991 market price of Sogeti stock, the purchase price could fall in the \$438.6 million ballpark.

Sogeti currently holds 58% of CGS,

the leading software and services group in Europe and reportedly No. 4 worldwide. The 34% share would increase overall capital to approximately \$200 million. As far back as October 1989, Sogeti indicated that it was starting to look for new shareholders who could help it to expand and consolidate its leading position in the rapidly evolving services field.

The deal, if consummated, would also catapult Daimler-Benz into the European outsourcing market, which is quickly becoming a hotly contested niche.

In addition, the talks are expected to

lead to the creation of a German joint venture between CGS and Berlin-based Debit System Haus to offer each other's services and collaborate through CGS' existing networks elsewhere in Europe. Their respective managements will remain separate, according to the firms. Debit System Haus is part of Daimler-Benz's general services unit, Daimler-Benz Inter-Services (Debis).

According to a report in the French business press, Sogeti President Serge Kampf said that CGS' activities would not compete with those of Debit in Germany. "Debit's activities are complementary with those of CGS," he said. "Moreover, Debit focuses above all on the internal needs of [Daimler-Benz]."

According to Sogeti, discussions with

Daimler-Benz could lead to other partnerships between the firms. The firm did not elaborate. However, it indicated that it was open to alliances with U.S. and Japanese partners.

A Sogeti spokesperson said that the final agreement with Daimler-Benz and its Debit subsidiary could be concluded within a few weeks.

In the last year, Sogeti spent \$318.4 million to acquire control of the UK's largest computer services group, Hoshyus PLC, and \$62.4 million to buy Germany's Scientific Control Systems.

With about 20,000 employees, CGS expects to see its revenue increase from \$1.5 billion to about \$1.9 billion this year.

Written by the IDC News Service, *Enterprise* bureau.

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INTERNATIONAL BRIEFS

Bull bailout in question

► The European Commission has opened a formal investigation into the \$1 billion in French government subsidies planned for the state-owned electronics giant *Commissariat des Machines Bull*, according to a report in the French business press. The Brussels authorities, said a commission spokesman quoted in the report, have given the French government "a terribly flexible" two months in which to provide detailed information about the aid package and the planned restructuring of the troubled Bull, which has been suffering major losses since 1989. In 1990, Bull lost \$1.1 billion.

Chances are... not

► Chances of achieving a broad-based international agreement that sets out high standards of software copyright protection look increasingly dim, a senior European Commission official told the French business press. When the Uruguay Round negotiations on intellectual property rights resume in mid-September, he said, outstanding problems are likely to keep the negotiators from reaching an agreement by year's end.

Low blow

► SD-Scicon, a British software consulting firm, has mounted a rear-guard action against Dallas-based Electronic Data Systems Corp. and its attempt to take over the UK firm. Early this month, EDS bought a 25% stake in Scicon in preparation for a full-scale takeover bid. However, Scicon told the British business press that it believes some 48% of its shareholders will reject the hostile \$121 million bid as too low.

Chinese expansion

► Unisys Corp. announced earlier this month that its first equity joint venture in China began operations in May. Meanwhile, IBM's Chinese software joint venture, The International Software Development Corp., is now up and running in Shenzhen, China. The IBM effort is a \$2.2 million venture co-funded by IBM China/Hong Kong, the Bank of East Asia and Shennan University Software Development Corp.

COMPUTER CAREERS

Sharp marketing skills a must for consultants

BY JANET RUTH,
SPECIAL TO CIO

Independent consulting during an employment drought may look as refreshing as a sparkling glass of water at the end of a desert hike. But what many information systems professionals don't know is that if they don't develop crackerjack marketing skills from the start, their consulting business will be nothing more than a mirage.

Unfortunately, few IS professionals have experience in the subtleties of marketing. As a result, new consultants often tend to base their marketing campaigns on strategies that fail to deliver.

The most common mistake is to place an advertisement in the Yellow Pages, according to seasoned veterans. These ads usually generate calls only from office equipment salespeople and from people hoping to get free computer advice.

Attracting wrong calls
Ads in newspapers with large circulations aren't any more effective. Consultants say that such ads usually prompt calls from out-of-work programmers who are looking for jobs.

Additionally, almost all con-

sultants report that the old fall-back of mailing out a resume along with a cover letter announcing their new consulting practices will rarely produce any leads at all.

There are marketing techniques that do work. According to those in the business, the following are some of the most effective:

- Networking with businesses and other consultants.



- Sending periodic newsletters.
- Delivering presentations or business seminars.
- Continuing to market your services throughout your consulting career.

The most effective way to guarantee continued employment is to reach out to businesses and the people around you. For example, Paul Ferraris, the owner of Columbus, a Columbus, Ohio, firm specializing in business-related database appli-

cations, found that forming relationships with salespeople at local computer and office equipment stores helped generate many referrals to his business.

"Offer to be a technical resource for whatever hardware and software you know well," he suggests. "Also, offer to field occasional phone calls from their customers directly."

Using your contacts

Establishing good rapport with other consultants can also prove to be a boon for business. Many consultants mistakenly treat consultants who specialize in a niche similar to their own as competitors.

But if professionals build relationships with these consultants by exchanging technical information or by helping them solve tricky problems, the "competition" will be more likely to pass your name on to a client when they are looked up.

A newsletter—whether consultant-written or purchased from a vendor—can be an effective consultant marketing tool. But consultants who have gone this route warn others not to begin a newsletter unless they are prepared for a long wait.

For example, Esther Schindler, an owner of Natural Intelligence, Inc. in Deer Isle, Maine, has been mailing a newsletter for a year. Though many of his clients mention that they are enjoying her newsletter, she has found that it often takes nine months before a recipient calls

her with a business need.

One costly mistake consultants can make is to send out their newsletters to too many people.

Burt Johnson at Mindstorm, Inc. in San Francisco limits his newsletter to a small list of prequalified leads—prospects he has spoken with and who he has determined are in a position to contract work or influence the choice of service providers.

Giving seminars and presentations at professional gatherings is also an effective marketing strategy for new consultants. But it isn't enough just to appear on the podium: A consultant must also follow up on the contacts made on the lecture circuit to turn them into paying work.

Bob Schenot, a consultant at Computer/New England in Portsmouth, N.H., has made valuable client contacts by teaching university courses and giving seminars under the aegis of The American Management Association. He says that he has generated contracts simply by calling at the seminar ended "just to chat." During these phone calls, the seminar attendees frequently respond to step in and help them complete their projects using the tools and technology he taught them at the seminar.

But most important of all, consultants must remember that

marketing is an ongoing process—even after the business is well under way.

A full-time search needed
Experienced consultants say that many professionals make the mistake of marketing their services only when they are facing an empty schedule.

"I found out years ago that if I

THE MOST EFFECTIVE way to guarantee continued employment is to build ongoing relationships with key businesses.

only sent out letters when I was looking for work, it gave the impression that I was always hungry. Even though they only heard from me every six months or so, clients had the impression that I was never working," Johnson says.

Johnson now mails out a monthly newsletter that he purchases from a vendor and includes with it a cover letter that briefly describes his current projects. Only once every few months does Johnson's letter indicate to potential clients that he is interested in taking on new work.

Robi is a consultant and programmer in Connecticut and author of *The Programmer's Survival Guide: Career Strategies for Computer Professionals*.

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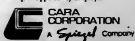
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John Wilhite
Manager, Corporate College Relations
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Hughes Aircraft, the aerospace electronics giant, is a full products company involved in the research, development, manufacturing, and support of over 100 different technologies. With about 55,000 employees in Southern California, Arizona, and Colorado, Hughes provides 12,000 separate products, services, and functions to the defense, space-related, and commercial industries worldwide. Since John Wilhite's job as Manager, Corporate College Relations is to oversee the recruitment of the country's top technology graduates, he advertises in *Computerworld's Campus Recruitment Edition*.

"Every year, Hughes recruits somewhere between 250 and 300 new graduates. The mainstream of our hiring centers around students with engineering backgrounds. Generally about 75% of our student recruits are in the electrical, mechanical, and computer engineering fields. Another 20% or so have scientific backgrounds, primarily in computer science and physics. The balance of our recruiting, then, is for MBA graduates with strong orientation in MIS or CIS. With one advertisement in *Computerworld's Campus Edition*, we get unique reach to all three of our student audiences.

"During the past few years, computer engineering and computer science graduates have become an increasingly important part of our recruitment efforts. So we need a publication that not only targets the exact audience we're trying to reach but also delivers quality responses. Based on the recruitment success of our first advertisement, we know *Computerworld's Campus Edition* gives us the most direct contact with our target audience of computer and engineering graduates. It definitely generates quality re-

sponses from students with the right types of backgrounds.

"In addition to delivering advertising results, the issue's Annual Student Survey serves as an important research tool. Upon receiving data on how students typically view Hughes Aircraft, we felt we needed to strengthen our image in this area. For continued success in recruiting top technical talent, we find feedback like this invaluable.

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Software

FROM PAGE 1

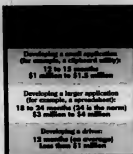
still stunned by two weeks of unprecedented deals, said last week that those scouting out the next PC software stunner should watch for the following:

- Large companies with holes in their product lines and niche players with proven technology. For example, Ashlar-Vellum, a Sunnyvale, Calif.-based computer-aided design and manufacturing (CAD/CAM) start-up, would be an attractive buy, said Kenneth Wasch, president of the Software Publishers Association, based in Washington, D.C. "A company like Lotus or Borland or Symantec could buy them and bootstrap its way into a very lucrative CAD/CAM business."

• Database companies. The standards-oriented, network-based strategies that many users are pursuing rely on bigger, easier-to-access, more secure databases. The technology is too complex to be picked up overnight, and many database companies are in trouble, said Richard Finkelstein, a consultant at Performance Computing, Inc.

• Troubled former highfliers. Software Publishing Corp., for example, has had its wings clipped by product problems. It is often named by analysts as a likely acquisition target and a likely buyer, as it seeks to add help to its flagging product line.

• Any company that could be seen as a technological or strategic fit with Symantec Corp., whose chief executive officer, Gordon Eubanks, "is the king of



Source: Windows/Transmission Magazine

software acquisitions: very focused and very determined," International Data Group analyst Nancy McSharry said.

The deals will keep on com-

ing, analysts said, because the motivations for mergers are so plentiful.

The leading desktop software vendors are trying to make the huge jump from being tactical suppliers of individual productivity applications to being strategic suppliers for corporations, said Stuart Woodring, an analyst at Forrester Research, Inc.

Also driving the industry consolidation are users looking for one-stop shopping, in part to simplify complex and conflicting licensing and upgrade policies.

They are also buying Microsoft Corp.'s Windows 3.0 as fast

as retailers can stock the shelves. Hence, companies that initially eschewed Windows are desperate to buy Windows applications and tools before the technology window closes, said Jesse Berr, editor of the "Windows Watcher" newsletter.

"PC software technology is much more complex today," Mooney said. "Circa 1982, any code larger than 64K was considered inefficient. Now, Lotus [Development Corp.] can't fit 1-2-3 3.0 into a memory space 10 times that."

The corresponding leaps in development costs (see chart) are staggering enough to send many small players partner-shopping, said Basil Maloney, executive director of Windows/Presentation Manager Association in Santa Clara, Calif.

Novell nets DRI in \$80M deal

BY JIM NASH
CW STAFF

Novell, Inc. bought itself an \$80 million insurance policy last week.

The Provo, Utah-based networking giant reached an agreement to buy Monterey, Calif.-based Digital Research, Inc. (DRI), maker of the DR DOS operating system. The acquisition would be in the form of an exchange for 1.5 million shares of Novell stock, worth an estimated \$80 million. The deal is scheduled to be completed in October.

Industry observers said DRI is protection for Novell against claims by networking rival Microsoft Corp. that it will inject key features of its LAN Manager network operating system directly into OS/2 New Technology's new desktop operating system now under development.

Novell can now incorporate its own features into DR DOS,



Novell President Novell (left) and DRI President Williams plan to leverage DRI's DOS alternative

which is compatible with each of the 74 million DOS systems installed worldwide, according to Nancy McSharry, an analyst at Framingham, Mass.-based International Data Corp. In this way, Novell can thwart what many say is Microsoft's last marketing gap for LAN Manager — tight integration into an operating system.

Some network administrators reacted cautiously to the news, saying they hope Novell does not neglect Netware in a bid to build the better personal computer operating system.

David Fairclough, a systems engineering specialist in electronic data systems at General Motors Corp. in Dallas, said he did not see obvious benefits for users, especially if Novell lost its focus on local-area networking.

Network managers are likely to benefit if Novell brings network management and con-

trol utilities to the desktop as part of DR DOS, analysts said. This early on, at least, it appears to be the only clear benefit for users, said Jonathan Rayns, vice president of data processing at United Group Insurance's Student Insurance Division.

Few observers expressed any doubt that Novell will hasten to bundle DR DOS into its Netware network operating system, potentially adding to DR DOS 5 million current users.

Spokesmen for both companies emphasized their intention to remake DR DOS into an operating system that integrates with the network at the moment it is loaded onto desktops. MS-DOS, designed before the onset of networking, does its best not to get in the way of networking functions carried out on PCs.

Peter Swenson, president and chief executive officer of the consulting firm Para Technology, Inc. in Bellevue, Wash., said DR DOS is a "squeezed-up" version of Microsoft's DOS and can be enhanced to more efficiently handle multi-tasking. Swenson said MS-DOS stumbles between tasks such as database requests from several database servers.

Uniting of mainframe software firms in works

FARMINGTON HILLS, Mich. — There is still room for consolidation in the mainframe software market. Last week, Compuware Corp. announced it had reached an agreement to buy XA Systems Corp., based in Los Angeles, Calif.

Both companies provide programming tools geared to testing and maintaining applications running against IBM's mainframe database management systems and have competed in several areas. Both companies are privately held and did not reveal terms of the acquisition.

The agreement marks the second major acquisition in just over a year for Compuware, founded in 1973 as a professional services firm. In June 1990, the company bought out Cestra

Software in San Jose, Calif., primarily to acquire that firm's debugging tools, Xpediter and Navigator, to complement its own debugging, file management and diagnostic tools.

Joseph A. Nielsen, senior vice president of Compuware's Software Products Division, said XA Systems brings "another, easier interface" that will be applied to Compuware products. While there is some product overlap, Nielsen said that currently competing products have complementary functions that will be merged.

Next month, Compuware will release a personal computer version of File-Aid, its file and data manipulation tool for programmers working with IBM's DB2, IBM and VSAM.

Storage Tek seen buying

BY ELLIS BOOKER
CW STAFF

LOUISVILLE, Colo. — Storage Technology Corp. is reportedly negotiating a stock-swap bid for IBM midrange remarketer XL/Datascap, Inc., according to published reports.

Neither firm would comment on the stories, which appeared in the Chicago business press last week. But Hinsdale, Ill.-based XL/Datascap did announce July 1 that in review of "strategic alternatives" included the possibility of a merger with an unnamed company in a stock-for-stock transaction.

The reseller has faced declining revenue since December, when it ceased to be an IBM industry reseller and thus lost access to discounts for new IBM systems.

The tape storage maker, with \$1.14 billion in revenue last year, has pursued a variety of business relationships, including outright acquisitions, strategic alliances, equity investments and joint ventures, noted Delia B. Silverman, an analyst at Boettcher & Co. in Denver. "It's not at all clear what they'll do in this case," she said.

Storage Tek would gain XL/Datascap's 120 sales representatives in 60 offices in the U.S.

XL/Datascap, with 1990 revenue of \$449.6 million, was once the world's largest remarketer of IBM midrange systems.

Significantly, more than 50% of the company's revenue in 1990 came from IBM equipment sales. Today, XL/Datascap gets no revenue from new IBM equipment sales.

Digital Research, Inc.

- Monterey, Calif.
- 275 employees worldwide
- \$40.9 million in net sales (FY ended Sept. 30, 1990)
- Founded 1976
- Major products: DR DOS, Ples OS
- DRI has an estimated 10M market share in the DOS world

Novell, Inc.

- Provo, Utah
- 2,750 employees worldwide
- \$487.5 million in net sales (FY ended Oct. 27, 1990)
- Founded 1983
- Major products: Netware 2, Netware 3
- Novell has an estimated 50% market share in the network operating system world

CW Staff/James Green

NEWS SHORTS

Cray Research won't co-develop

Cray Research, Inc. is on track with its development of a massively parallel supercomputer capable of sustained turnoff performance by 1987. But the Englewood, Colo., company has decided not to develop the product in conjunction with another company, according to a letter sent to all Cray employees last week by Cray Chairman and Chief Executive Officer John A. Behlendorf. The company plans to deliver by 1985 a massively parallel, microprocessor-based system that works with the Y-MP supercomputer, he said. This first of three system generations will exceed 100 gigaflops.

Fleet/Novstar plans satellite net

Fleet/Novstar Financial Group plans to launch a 600-site private satellite network to connect its bank branches in five states. AT&T Telenet will provide the very small-aperture terrestrial satellite network, which will connect branches in New York, Rhode Island, Connecticut, Maine and New Hampshire to Fleet/Novstar's host computers in Albany, N.Y.

NCR puts user service on-line

NCR Corp. announced a service plan that will allow customers to handle common problems on their own. Solutes Bank, which will be provided as a standard offering of the company's Software Services, gives users access to NCR service databases and an electronic mail facility to communicate with NCR staff members. One database will provide information on common problems as well as solutions to them. A second can be used to order products and services.

PCs linked to Prime Information

Last week, Prime Computer, Inc. officially unveiled Hyperstream, a data transfer tool aimed at personal computers wishing to access the Prime Information database environment. The package allows PC users to query the database on a Prime midrange system and to cut and paste the downloaded data into applications such as Lotus Development Corp.'s 1-2-3 and Microsoft Corp.'s Word for Windows on the desktop.

Microsoft plans Dallas center

Swamped by customers planning in with DOS 5.0 and Windows 3.0 questions, Microsoft plans to open a product support center in the Dallas area in October. The support center will join others in Bellevue, Wash., and Charlotte, N.C.

IObase-T wins support

Hyperstream then, Inc. announced last week an enhanced version of its Ethernet adapter cards that includes IObase-T and IBM 3270 support. IObase-T is the most recent version of the Ethernet local-area network standard. It allows a LAN to run over unshielded twisted-pair wiring and possesses a physical star configuration through an intelligent wiring hub.

Servient to port visualization tools

Servient Computer, Inc. in Concord, Mass., is scheduled to announce today that its Application Visualization System will be ported to the entire 486 series line of workstations from Silicon Graphics, Inc. The Application Visualization System is an interactive visualization environment that allows users to apply advanced visualization, graphics and imaging without graphics programming.

IBM enters supermarket messaging

Chicago-based Wal-Mart, Inc. has entered into strategic alliances with both IBM and Information Resources, Inc. in order to expand Wal-Mart's electronic nationwide network for accelerating message delivery. The messages are sent to strategic display screens on shopping carts. The agreement calls for the implementation of point-of-sale systems, software development and database-driven targeted marketing techniques.

AT&T wins \$1.4B IRS contract, its biggest computer sale ever

BY ELLIS BOOKER
CIVILIAN

WASHINGTON, D.C. — AT&T won its largest computer contract ever last week, announcing that it has been selected to provide some 50,000 of its personal computers and 3,200 Unix servers to the Internal Revenue Service and other parts of the U.S. Department of the Treasury.

Winning the seven-year contract, worth an estimated \$1.4 billion, is an ironic coda to the sometimes disappointing early year history of AT&T Computer Systems.

In recent weeks, AT&T has begun the process of folding its own computer group into that of NCR Corp., the Dayton, Ohio-based computer maker that AT&T plans to acquire for \$7.4 billion.

Last hurrah

Savoring what may be their last hurrah before being integrated into NCR, AT&T executives emphasized that they had been working on the IRS bid for 2½ years, long before the plan to acquire NCR.

"We're awfully pleased ... We believe it proves AT&T is in the systems integration business

and is able to compete with the industry giants," said Frank Florina, director of sales and programs at AT&T's Federal Computer Division here. AT&T best out finalists IBM and the information systems division of Lockheed Corp.

Florina also revealed that talks with NCR's federal group had commenced but that no decision had been reached as to how or if the two organizations would be combined.

Florina noted that the two operations have really not competed much because NCR has provided more in the way of point-of-sale and automated teller machine systems to its federal customers.

"In some ways, it's very encouraging to say we haven't been competing," Florina said. "If, in fact, we merge, we'll end up with a much more robust organization."

AT&T's Federal Computer Division has about 400 employees today but will grow to about 550 as a result of winning the IRS bid.

Called the Treasury Multi-user Acquisition Contract, or TMAC, the award allows Treasury Department bureaus other than the IRS to buy the client/

server computer systems from AT&T.

Major contracts

AT&T now has three of the government's largest computer contracts.

The other two contracts are the U.S. Air Force's Standard Multitier Small Computer Requirements Contract, which was awarded in October 1988 and is valued at more than \$1 billion, and the U.S. Department of Transportation's Office Automation Technology and Services Contract, which was awarded in December 1989 and is valued at \$850 million.

The IRS computer procurement is part of an \$8 million program to keep tens of millions of tax records on-line.

AT&T will provide nearly 50,000 of its Intel Corp. 80386-based PCs and 3,200 Unix servers.

The servers will be furnished by AT&T's main subcontractor, Pyramid Technology Corp. in Mountain View, Calif.

El Segundo, Calif.-based Computer Sciences Corp., which is another AT&T subcontractor, will be in charge of software integration, a range of professional services.

3B2 goes to RISC chip, boosts compatibility

BY ELLIS BOOKER
CIVILIAN

AT&T Computer Systems is scheduled to unveil today new models of its venerable Unix minicomputer line, the 3B2, and its high-end, multiprocessor Unix system.

The new R3 series, which had been expected, brings binary compatibility across AT&T's midrange and high-end platforms.

The 3B2, which was introduced by AT&T in 1984 and used in more than 60,000 sites, will move from its existing proprietary processor to a 33-MHz reduced instruction set computing chip from Mips Computer Systems, Inc.

The Mips chip is already used in AT&T's high-end, multiprocessor System 7000, made for AT&T by Pyramid Technology Corp.

In addition, both the 3B2/1000 R3 and the System 7000 R3 will get the latest iteration of the Unix operating system, Unix System V Release 4.

Analysts said the new models, which are slated to be available in September, deliver an attractive power boost — two to three times that of the 3B2/1000 R3 — and ought to keep 3B2 users content for a few more years until a migration path to NCR Corp.'s architecture is articulated.

"If the merger [with NCR] hadn't happened, this would have been the first step in a new product line," said David Card, an analyst at International Data Corp. in Framingham, Mass. "As it stands, it's a very graceful end of the line."

Price is the key

Some customers, however, said the attractiveness of the 3B2 upgrade will come down to its price.

"If it's less than \$15,000 to \$20,000, then yes, it probably makes sense in some cases," said Dan Amadio, vice president of MDS at Hyatt Hotels Corp. in Chicago.

Hyatt is one of AT&T's largest commercial users of 3B2 and

has the system in virtually all of its 92 domestic hotels.

Amadio said he is less sure about what to buy in the way of new equipment and wonders if the Intel Corp. 1486 adopted by NCR is his future.

"We're very interested in hearing about that migration strategy to the NCR systems," he said.

James E. Clark, vice president of high-performance and fault-tolerant systems at AT&T, last week said that such a migration has already been accomplished within AT&T.

Clark said the company successfully migrated applications from its Intel-based Starvers/6 server to the Mips-based System 7000 a year ago.

The 3B2 upgrade kit, comprising a single system board and to Unix System V Release 4 operating system, will cost \$22,900, according to AT&T. A new Mips/1000 R3 ranges in price from \$49,900 to \$74,900.

A new System 7000 R3 ranges in price from \$145,000 to more than \$1 million, depending on the number of CPUs.

Along with the R3, AT&T announced its first high-availability system last week. Called the System 7700, the product uses dual System 7000s that share redundant peripherals.



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A JAPANESE LINGERIE MAKER HAS DESIGNED A BRASSIERE WITH A TINY MEMORY CHIP THAT PLAYS 20 SECONDS OF MOZART'S MUSIC. THE OCCASION: THE BICENTENNIAL OF THE AUSTRIAN COMPOSER'S DEATH. DEVELOPED BY TRIUMPH INTERNATIONAL JAPAN, THE BRA FASTENS IN THE FRONT WHERE THE CHIP IS LOCATED. UPON SECURING THE BRA, IT PLAYS MOZART'S MUSIC USING A MICROCHIP SIMILAR TO THE ONES EMBEDDED IN MUSICAL GREETING CARDS, ACCORDING TO A REUTERS NEWS SERVICE REPORT. SPEAKERS FOR THE DEVICE ARE LOCATED UNDER THE ARMPITS.



Not another motherboard announcement!

"Before you say to yourself, 'Not another motherboard announcement,' let's take a second to see if you've ever seen anything like this" — From an RD Labs press release.

Coco eggs

Consumer advocates handed out awards for the Heroes and Zeros of Marketing, and high on the list of Zeros was the computerized dialing machine industry. It was cited by the Center for the Study of Commercialism in Washington, D.C., for invading homes and offices with obnoxious, recorded telemarketing calls.



Courtesy of the Computer Museum, Boston

PARK AND PLAY

The Garage is a new hands-on museum in San Jose, Calif., that explores the very science and technology have transformed our lives. Exhibits are highly interactive, with visitors able to custom design cubes, get their portrait done by a robot, cruise over Mars by laser disc and create their own aerogoggles. The facility's name pays homage to those Silicon Valley start-ups whose million-dollar inventions got their start in garages.

The response is killing him: RCA's 501 computer handled the tallies during the Nixon-Kennedy presidential race. The 501 had high-speed magnetic core storage, with a transfer rate of 4 alphanumeric characters in 15 millionths of a second.

Do you have anecdotes about your users, your boss or your job? Know any industry trivia? If so, please contact Lory Zottola or Jodie Naze at (800) 343-6474. If we use your ideas, we'll send you a gift.

Sources: ICG News Service, Austin Bureau; The Washington Post, Harvard Business Review's "World Leadership Survey"; special thanks to The Computer Museum, Boston.

Whatever works

Executives in leading industrial countries cite the top three factors that make their organizations successful (1 = most important)



U.S.



Japan



Germany

- Customer service
- Product quality
- Technology
- Product development
- Management
- Product quality
- Work-force skills
- Problem solving
- Management

Based on 11,678 responses from senior managers in large companies worldwide

INSIDE LINES

Money to play with

Look for further banking consolidations, this time at the automated teller machines. Visa U.S.A., which currently has one-third control of Plan Systems, is negotiating an outright purchase of Plan. An official at Plan said such a merger could occur within the next two months. Visa recently announced it intends to launch a debit card this year. It's all part of Visa's intention to become a major player at all levels of the electronic funds transfer market.

DG reads a four-pack

This week, DG is expected to roll out four 33-MHz, x86-based desktop workstations. Code-named Rolling Ball, the project has been on the drawing board for about a year now, sources say, and the new single and dual processors will make the current 16-MHz 4020 and 3200 machines offered by DG obsolete. Priced between \$4,000 and \$10,000, the new entries will compete directly with HP's recently announced entry-level RESC server.

What's Next, you ask?

AIK users last week were wondering what ever because of IBM's interest in Next's Nextstep. So were we, so we asked IBM. According to an IBM spokeswoman, IBM did begin a limited delivery of support for

Nextstep Release 1.0 under AIX but withdrew it from the market when Next announced Release 2.0, which featured added niceties such as color. In September, IBM said it would move to Nextstep 2.0. But those days, IBM is in the process of evaluating 2.0 and is not ready to commit to delivering support for it, the spokeswoman said. IBM's decision may be moot anyway. AIX users contacted last week clearly preferred the Macintosh interface to Nextstep. However, most are leaning toward standardizing on Motif.

Nextstep to Eclipse networks

Apple plans to beef up its high end this fall with a Tower model based on Motorola's speedy 68040 microprocessor, the same chip used in the Macintosh and a family of HP workstations. Shaded to be named the Macintosh Eclipse, it will be sold as a file server designed to serve as the hub for a complex of PCs.

What's small, colorful and late?

Observers say IBM is hard at work on a battery-powered, laptop-size computer with a color screen. IBM had wanted to get the machine out in the fourth quarter of 1991, but power management issues have bumped its release date back to first quarter 1992.

Looking to the stars

Compaq may strive to become the Warren Beatty of computers, but the new Silicon Graphics machine, code-named Hollywood, appears to have little of Compaq in its genes — despite the company's per-

chase of 13% of the smaller company in April. The low-end graphics workstation is set to make Silicon Graphic's entry level more competitive than its current low end at \$11,500.

Finally, a real home computer application

Pittsburgh-based NeuraWare offers the state-of-the-art cookie-baking process. NeuraWare said the simulated cookie-baking process. NeuraWare said the software took into account "unstable building" (sloppy bakers) and "the thermodynamic behavior of the cookies" (baking, chilling). Gee, just like the ones Mom used to bake.

What, we worry? Microsoft jettisoned the IBM/Apple alliance, but company evangelist Steve Ballmer hits the East Coast this week on a tour designed to update press and analysts on Microsoft's Windows strategy and, no doubt, new OS/2 strategy. Meanwhile, a Windows analyst says the company has been calling to ask whether he's hearing enough from Microsoft. "Tell me whether you're feeling enough from Microsoft. Well, it was not enough for most in recent days and to keep the flames high throughout the summer, call in those news standers to News Editor Pete Bertelme at (800) 343-6474, fax some paper fans to (800) 875-8851, or do it the cool way by dropping a line via our CompuServe address, 76537.2413.

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